

5	2.34061E-01	2.99967E-01	1	1.47065E+00	2.21299E-01	1.00000E+00
6	3.53873E-01	3.80612E-01	1	2.22346E+00	1.27890E-01	1.00000E+00
7	4.07351E-01	4.24781E-01	1	2.59946E+00	9.30429E-02	1.00000E+00
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0
12	4.77406E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0
13	4.78790E-01	4.83199E-01	3	3.00833E+00	2.65268E-02	1.00000E+00
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60986E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11473E-01	6.45756E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63893E-01	4	4.70854E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

1	outer	inner	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	101	1.11787E-05	9.99993E-01	6.49892E-05	1.00000E+00	2.52158E-03	.00000E+00	.0000	
2	149	-8.33695E-06	9.99406E-01	2.43131E-04	7.98053E-04	2.45349E-04	.00000E+00	.0000	
3	181	1.44078E-05	9.99092E-01	2.80463E-05	6.79948E-05	4.57289E-05	.00000E+00	.0000	

grp to	grp	inner	mfd	max. flux difference	msf	max. scale factor	coarse mesh
1	1	1	1	5.73095E-08	24	1.00000E+00	1
2	2	1	2	5.51458E-08	24	1.00000E+00	1
3	3	1	1	6.01701E-08	24	1.00000E+00	1
4	4	1	1	6.08779E-08	24	1.00000E+00	1
5	5	1	1	6.98855E-08	24	1.00000E+00	1
6	6	1	1	4.77424E-08	24	1.00000E+00	1
7	7	1	24	1.37317E-07	24	1.00000E+00	1
8	8	1	24	1.62673E-08	24	1.00000E+00	1
9	9	1	24	4.18811E-08	24	1.00000E+00	1
10	10	1	24	4.67403E-08	24	1.00000E+00	1
11	11	1	24	5.11897E-08	24	1.00000E+00	1
12	12	1	24	9.35846E-08	24	1.00000E+00	1
13	13	1	24	1.00540E-07	24	1.00000E+00	1
14	14	1	24	7.25213E-08	24	1.00000E+00	1
15	15	1	24	5.27113E-05	24	1.00009E+00	1
16	16	1	24	6.67454E-05	24	1.00002E+00	1
17	17	1	18	2.26954E-05	24	1.00005E+00	1
18	18	1	19	4.85348E-05	24	1.00004E+00	2
19	19	1	18	2.16966E-05	24	1.00006E+00	1
20	20	1	24	5.35083E-05	24	1.00004E+00	1
21	21	1	18	2.70142E-05	24	1.00006E+00	1
22	22	1	24	3.62316E-05	24	1.00002E+00	1
23	23	1	24	7.42566E-06	24	9.99996E-01	1
24	24	1	24	1.55458E-05	24	9.99990E-01	1
25	25	1	24	2.10491E-05	24	9.99994E-01	1
26	26	1	21	1.97174E-05	24	9.99983E-01	2
27	27	1	2	6.17890E-06	24	9.99994E-01	2

4	208	4.57026E-07	9.98225E-01	4.67737E-06	1.25759E-05	1.06706E-05	.00000E+00	.0000
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final monitor

lambda 9.98227E-01 production/absorption 9.98230E-01 angular flux on 16

- elapsed time .00 min.

1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gnd/mtu burn high temp

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	2.89726E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.30351E-02
3	1	6.07710E-02	8.75100E-02	3.81836E-01	2.94045E-02	4.04558E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.82221E-01
5	1	2.34061E-01	2.99967E-01	1.47066E+00	2.21299E-01	3.15368E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.87310E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.39080E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.12871E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.68507E-01	4.71481E-01	2.95000E+00	1.16888E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77406E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.85268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06829E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60928E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.68893E-01	4.70354E+00	1.46879E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.0654E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gnd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.85788E-01	1.34704E+00	1.69091E+00	1.04528E+00	1.57842E+00	3.03225E+00	2.90647E+00	2.08282E+00
2	1.85854E-01	1.34768E+00	1.69174E+00	1.04578E+00	1.57912E+00	3.03355E+00	2.90713E+00	2.08289E+00
3	1.85797E-01	1.34706E+00	1.69098E+00	1.04531E+00	1.57834E+00	3.03195E+00	2.90611E+00	2.08269E+00
4	1.85389E-01	1.34279E+00	1.68559E+00	1.04202E+00	1.57311E+00	3.02153E+00	2.89984E+00	2.08163E+00
5	1.82330E-01	1.33178E+00	1.67175E+00	1.03368E+00	1.55994E+00	2.99570E+00	2.88438E+00	2.07901E+00
6	1.81105E-01	1.31920E+00	1.65618E+00	1.02435E+00	1.54530E+00	2.96738E+00	2.85753E+00	2.07611E+00
7	1.80123E-01	1.30932E+00	1.64414E+00	1.01722E+00	1.53425E+00	2.94646E+00	2.8518E+00	2.07392E+00
8	1.79149E-01	1.29966E+00	1.63256E+00	1.01047E+00	1.52395E+00	2.92734E+00	2.84400E+00	2.07187E+00
9	1.7814E-01	1.29443E+00	1.62634E+00	1.00688E+00	1.51853E+00	2.91738E+00	2.83822E+00	2.07078E+00
10	1.78503E-01	1.29337E+00	1.62510E+00	1.00619E+00	1.51753E+00	2.91599E+00	2.83724E+00	2.07058E+00
11	1.78340E-01	1.29184E+00	1.62390E+00	1.00520E+00	1.51612E+00	2.91306E+00	2.83585E+00	2.07029E+00
12	1.78232E-01	1.29083E+00	1.62213E+00	1.00456E+00	1.51520E+00	2.91144E+00	2.83496E+00	2.07011E+00
13	1.78032E-01	1.28936E+00	1.61990E+00	1.00331E+00	1.51339E+00	2.90801E+00	2.83303E+00	2.06972E+00
14	1.77487E-01	1.28363E+00	1.61336E+00	9.99475E-01	1.50760E+00	2.89677E+00	2.82663E+00	2.06867E+00
15	1.76876E-01	1.27718E+00	1.60493E+00	9.94153E-01	1.49921E+00	2.88017E+00	2.81707E+00	2.06753E+00
16	1.76578E-01	1.27361E+00	1.59989E+00	9.90679E-01	1.49346E+00	2.86864E+00	2.81057E+00	2.06700E+00
17	1.76434E-01	1.27157E+00	1.59677E+00	9.88346E-01	1.48952E+00	2.86069E+00	2.80571E+00	2.06684E+00
18	1.76246E-01	1.26892E+00	1.59276E+00	9.85371E-01	1.48446E+00	2.85073E+00	2.79986E+00	2.06671E+00
19	1.76010E-01	1.26577E+00	1.58812E+00	9.82008E-01	1.47878E+00	2.83960E+00	2.79330E+00	2.06646E+00
20	1.75695E-01	1.26170E+00	1.58222E+00	9.77783E-01	1.47171E+00	2.82577E+00	2.78518E+00	2.06612E+00
21	1.75479E-01	1.25886E+00	1.57807E+00	9.74795E-01	1.46669E+00	2.81597E+00	2.77950E+00	2.06602E+00
22	1.75480E-01	1.25873E+00	1.57777E+00	9.74512E-01	1.46617E+00	2.81496E+00	2.77909E+00	2.06624E+00
23	1.75560E-01	1.25960E+00	1.57850E+00	9.75241E-01	1.46734E+00	2.81725E+00	2.78053E+00	2.06652E+00
24	1.7561E-01	1.26062E+00	1.58028E+00	9.76139E-01	1.46879E+00	2.82009E+00	2.78232E+00	2.06680E+00
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58987E+00	1.45035E+00	1.31038E+00	7.97791E-01	6.69819E-01	5.76646E-01	3.64429E-01	1.98572E-01
2	1.58980E+00	1.45025E+00	1.31018E+00	7.97560E-01	6.69607E-01	5.76368E-01	3.64389E-01	1.98542E-01
3	1.58998E+00	1.45046E+00	1.31064E+00	7.98113E-01	6.70081E-01	5.77100E-01	3.64477E-01	1.98600E-01
4	1.59100E+00	1.45166E+00	1.31325E+00	8.01214E-01	6.72771E-01	5.81215E-01	3.64964E-01	1.98938E-01
5	1.59354E+00	1.45457E+00	1.31968E+00	8.08869E-01	6.79413E-01	5.91429E-01	3.66140E-01	1.99769E-01

6	1.59637E+00	1.45775E+00	1.32671E+00	8.17298E-01	6.85718E-01	6.02749E-01	3.67410E-01	2.00675E-01
7	1.59852E+00	1.46009E+00	1.33189E+00	8.23548E-01	6.92128E-01	6.11210E-01	3.68325E-01	2.01341E-01
8	1.60059E+00	1.46221E+00	1.33661E+00	8.29287E-01	6.97091E-01	6.19021E-01	3.69144E-01	2.01947E-01
9	1.60163E+00	1.46330E+00	1.33905E+00	8.32269E-01	6.99669E-01	6.23082E-01	3.69564E-01	2.02262E-01
10	1.60183E+00	1.46348E+00	1.33944E+00	8.32747E-01	7.00088E-01	6.23725E-01	3.69635E-01	2.02315E-01
11	1.60211E+00	1.46373E+00	1.34000E+00	8.33431E-01	7.00688E-01	6.24458E-01	3.69737E-01	2.02392E-01
12	1.60229E+00	1.46389E+00	1.34056E+00	8.33874E-01	7.01076E-01	6.25240E-01	3.69802E-01	2.02441E-01
13	1.60266E+00	1.46429E+00	1.34110E+00	8.34776E-01	7.01868E-01	6.26456E-01	3.69937E-01	2.02543E-01
14	1.60367E+00	1.46531E+00	1.34344E+00	8.37599E-01	7.04348E-01	6.30259E-01	3.70368E-01	2.02861E-01
15	1.60478E+00	1.46684E+00	1.34679E+00	8.41494E-01	7.07769E-01	6.35498E-01	3.70978E-01	2.03301E-01
16	1.60530E+00	1.46787E+00	1.34899E+00	8.44006E-01	7.09973E-01	6.38869E-01	3.71381E-01	2.03585E-01
17	1.60558E+00	1.46854E+00	1.35053E+00	8.45854E-01	7.11562E-01	6.41326E-01	3.71607E-01	2.03773E-01
18	1.60600E+00	1.46967E+00	1.35286E+00	8.48880E-01	7.13715E-01	6.44677E-01	3.71853E-01	2.04019E-01
19	1.60653E+00	1.47086E+00	1.35542E+00	8.51287E-01	7.16198E-01	6.48537E-01	3.72163E-01	2.04303E-01
20	1.60727E+00	1.47235E+00	1.35856E+00	8.54990E-01	7.19362E-01	6.53458E-01	3.72532E-01	2.04665E-01
21	1.60782E+00	1.47342E+00	1.36098E+00	8.57631E-01	7.21588E-01	6.56938E-01	3.72726E-01	2.04898E-01
22	1.60788E+00	1.47352E+00	1.36120E+00	8.57864E-01	7.21737E-01	6.57208E-01	3.72637E-01	2.04883E-01
23	1.60773E+00	1.47328E+00	1.36052E+00	8.57178E-01	7.21100E-01	6.56289E-01	3.72475E-01	2.04786E-01
24	1.60754E+00	1.47258E+00	1.35990E+00	8.56532E-01	7.20350E-01	6.55121E-01	3.72308E-01	2.04678E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.64320E-02	2.34091E-02	1.10648E-01	4.04673E-01	9.67836E-02	1.51708E-01	6.18489E-01	4.66905E-01
2	7.63974E-02	2.34338E-02	1.10591E-01	4.04656E-01	9.67183E-02	1.51609E-01	6.18095E-01	4.66587E-01
3	7.64755E-02	2.37291E-02	1.10728E-01	4.04784E-01	9.69350E-02	1.52291E-01	6.19124E-01	4.67464E-01
4	7.69180E-02	2.50190E-02	1.11490E-01	4.06045E-01	9.80879E-02	1.55648E-01	6.24811E-01	4.72273E-01
5	7.80191E-02	2.84204E-02	1.13359E-01	4.09140E-01	1.00976E-01	1.64143E-01	6.38920E-01	4.84224E-01
6	7.92408E-02	3.25764E-02	1.15402E-01	4.12519E-01	1.04219E-01	1.73864E-01	6.54551E-01	4.97501E-01
7	8.01553E-02	3.61208E-02	1.16900E-01	4.14997E-01	1.06681E-01	1.81413E-01	6.66226E-01	5.07454E-01
8	8.10014E-02	3.97956E-02	1.18255E-01	4.17252E-01	1.08984E-01	1.88618E-01	6.77004E-01	5.16683E-01
9	8.14424E-02	4.17918E-02	1.18953E-01	4.18420E-01	1.10187E-01	1.92414E-01	6.82603E-01	5.21489E-01
10	8.15133E-02	4.20092E-02	1.19053E-01	4.18614E-01	1.10367E-01	1.92933E-01	6.83461E-01	5.22211E-01
11	8.16146E-02	4.23210E-02	1.19222E-01	4.18889E-01	1.10625E-01	1.93677E-01	6.84684E-01	5.23295E-01
12	8.16802E-02	4.25257E-02	1.19324E-01	4.19068E-01	1.10791E-01	1.94158E-01	6.85473E-01	5.23901E-01
13	8.18142E-02	4.29348E-02	1.19534E-01	4.19433E-01	1.11131E-01	1.95138E-01	6.87087E-01	5.25254E-01
14	8.22528E-02	4.41991E-02	1.20201E-01	4.20575E-01	1.12192E-01	1.98176E-01	6.92105E-01	5.29426E-01
15	8.28073E-02	4.58904E-02	1.21134E-01	4.22146E-01	1.13643E-01	2.02291E-01	6.98914E-01	5.35005E-01
16	8.31757E-02	4.69454E-02	1.21745E-01	4.23153E-01	1.14570E-01	2.04888E-01	7.03206E-01	5.38457E-01
17	8.34476E-02	4.77335E-02	1.22185E-01	4.23849E-01	1.15282E-01	2.06906E-01	7.06733E-01	5.41617E-01
18	8.38213E-02	4.88290E-02	1.22780E-01	4.24781E-01	1.16284E-01	2.09784E-01	7.11982E-01	5.46600E-01
19	8.42518E-02	5.00851E-02	1.23466E-01	4.25873E-01	1.17444E-01	2.13130E-01	7.18246E-01	5.52619E-01
20	8.48003E-02	5.16798E-02	1.24339E-01	4.27269E-01	1.18931E-01	2.17434E-01	7.26569E-01	5.60751E-01
21	8.51914E-02	5.28138E-02	1.24953E-01	4.28221E-01	1.20002E-01	2.20543E-01	7.32841E-01	5.67092E-01
22	8.52267E-02	5.29215E-02	1.24994E-01	4.28229E-01	1.20111E-01	2.20872E-01	7.33757E-01	5.68804E-01
23	8.51267E-02	5.26404E-02	1.24821E-01	4.27902E-01	1.19849E-01	2.20122E-01	7.32480E-01	5.67296E-01
24	8.50034E-02	5.22905E-02	1.24611E-01	4.27523E-01	1.19521E-01	2.19178E-01	7.30801E-01	5.65862E-01
0 int.	grp. 25	grp. 26	grp. 27					
1	1.95803E-01	1.20109E-01	1.60443E-02					
2	1.95669E-01	1.20022E-01	1.60428E-02					
3	1.96123E-01	1.20450E-01	1.61783E-02					
4	1.98534E-01	1.22664E-01	1.67972E-02					
5	2.04537E-01	1.28173E-01	1.83664E-02					
6	2.11232E-01	1.34381E-01	2.01924E-02					
7	2.16279E-01	1.39123E-01	2.16530E-02					
8	2.20989E-01	1.43604E-01	2.30958E-02					
9	2.23448E-01	1.45956E-01	2.38661E-02					
10	2.25807E-01	1.46278E-01	2.39564E-02					
11	2.26318E-01	1.46734E-01	2.40848E-02					
12	2.26648E-01	1.47028E-01	2.41675E-02					
13	2.25318E-01	1.47626E-01	2.43353E-02					
14	2.27352E-01	1.49425E-01	2.48316E-02					
15	2.30000E-01	1.51731E-01	2.54458E-02					

16 2.31583E-01 1.53082E-01 2.57881E-02
 17 2.33174E-01 1.54698E-01 2.63213E-02
 18 2.35811E-01 1.57524E-01 2.72960E-02
 19 2.39053E-01 1.60961E-01 2.84387E-02
 20 2.43438E-01 1.65651E-01 2.99429E-02
 21 2.46957E-01 1.69489E-01 3.11799E-02
 22 2.47727E-01 1.70464E-01 3.15478E-02
 23 2.47271E-01 1.70129E-01 3.15054E-02
 24 2.46568E-01 1.69513E-01 3.13679E-02

- elapsed time .00 min.

1 fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.33589E-02	.00000E+00	1.30809E-02	1.09077E-02	3.30008E-03	1.15058E-02	9.98841E-01
2	.00000E+00	1.95084E-01	2.41777E-03	1.68673E-01	6.72845E-02	1.36905E-02	1.16539E-01	1.00004E+00
3	.00000E+00	2.16057E-01	2.66656E-02	1.61736E-01	8.16111E-02	1.54936E-02	1.45627E-01	1.00000E+00
4	.00000E+00	1.23684E-01	3.98836E-02	1.05789E-01	6.79578E-02	7.36485E-03	8.76426E-02	1.00001E+00
5	.00000E+00	1.63760E-01	6.83491E-02	2.60142E-01	9.47464E-02	4.36292E-03	1.33002E-01	9.99992E-01
6	.00000E+00	1.76456E-01	1.35112E-01	6.53798E-01	5.43600E-02	6.80647E-03	2.50401E-01	1.00008E+00
7	.00000E+00	8.71164E-02	9.85425E-02	7.44150E-01	3.63364E-02	7.27131E-03	1.42050E-01	1.00001E+00
8	.00000E+00	1.34131E-02	4.25864E-02	6.30310E-01	2.15264E-02	1.35652E-02	2.09053E-02	1.00004E+00
9	.00000E+00	9.73270E-04	2.17502E-02	5.36039E-01	2.07341E-02	2.25980E-02	-2.06082E-02	9.99991E-01
10	.00000E+00	7.22858E-05	2.07561E-02	4.63791E-01	1.07478E-02	3.50686E-02	-2.49887E-02	1.00001E+00
11	.00000E+00	5.68699E-06	1.07489E-02	4.26688E-01	8.18658E-03	5.75793E-02	-5.50120E-02	1.00001E+00
12	.00000E+00	3.99500E-07	8.18663E-03	2.41694E-01	9.40173E-03	6.42909E-02	-6.55026E-02	9.99999E-01
13	.00000E+00	6.34369E-08	9.40174E-03	1.81043E-01	6.15307E-03	6.05272E-02	-5.72788E-02	1.00000E+00
14	.00000E+00	1.25715E-08	6.15308E-03	1.52074E-01	7.30064E-03	8.68506E-02	-8.79983E-02	1.00000E+00
15	.00000E+00	1.42072E-09	7.38525E-03	8.33912E-02	8.76155E-03	8.05705E-03	-9.53961E-03	1.00632E+00
16	.00000E+00	4.17172E-10	8.91006E-03	4.16468E-02	9.35774E-03	6.78972E-03	-7.31179E-03	1.00461E+00
17	.00000E+00	1.34350E-10	7.43423E-03	1.36579E-02	6.98405E-03	1.01912E-02	-9.71779E-03	1.00156E+00
18	.00000E+00	9.61905E-11	6.75231E-03	7.16929E-03	3.12093E-03	3.16056E-02	-2.80013E-02	1.00020E+00
19	.00000E+00	1.39992E-10	5.40004E-03	2.18239E-02	7.97073E-03	1.30210E-02	-1.56190E-02	1.00130E+00
20	.00000E+00	2.21138E-10	8.97991E-03	9.68570E-02	9.15287E-03	2.64602E-02	-2.67453E-02	1.00804E+00
21	.00000E+00	3.23675E-11	8.47705E-03	1.90448E-02	7.43011E-03	2.60782E-02	-2.50566E-02	1.00076E+00
22	.00000E+00	3.75537E-11	1.08786E-02	3.55168E-02	8.02540E-03	7.44615E-02	-7.16532E-02	1.00054E+00
23	.00000E+00	3.59055E-11	1.28780E-02	1.50450E-01	1.65811E-02	1.19930E-01	-1.29805E-01	1.00126E+00
24	.00000E+00	9.77301E-12	2.04524E-02	1.06694E-01	2.07018E-02	1.05716E-01	-1.06077E-01	1.00104E+00
25	.00000E+00	2.86090E-12	1.77858E-02	4.06994E-02	1.35049E-02	5.70012E-02	-5.27962E-02	1.00079E+00
26	.00000E+00	2.00608E-12	8.80172E-03	2.85425E-02	6.11118E-03	5.11556E-02	-4.85021E-02	1.00065E+00
27	.00000E+00	4.78059E-13	1.91637E-03	4.31134E-03	1.06471E-03	1.43888E-02	-1.35299E-02	1.00037E+00
28	.00000E+00	1.00000E+00	6.15961E-01	5.38849E+00	6.15961E-01	9.43622E-01	5.79059E-02	1.00050E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*nd*2	total flux
1	1.78643E-01	1.15058E-02	1.85726E-01	.00000E+00	2.32484E-03	2.69862E-03	.00000E+00	1.25126E-01
2	1.29471E+00	1.16539E-01	1.34641E+00	.00000E+00	1.68249E-05	1.19016E-02	.00000E+00	9.12852E-01
3	1.62667E+00	1.45627E-01	1.69009E+00	.00000E+00	.00000E+00	1.44679E-02	.00000E+00	1.14605E+00
4	1.00706E+00	8.76426E-02	1.04479E+00	.00000E+00	.00000E+00	6.22017E-03	.00000E+00	7.08760E-01
5	1.51879E+00	1.33002E-01	1.57771E+00	.00000E+00	.00000E+00	1.76645E-03	.00000E+00	1.05949E+00
6	2.91786E+00	2.50401E-01	3.08090E+00	.00000E+00	.00000E+00	1.42756E-03	.00000E+00	2.05399E+00
7	2.83849E+00	1.42050E-01	2.90573E+00	.00000E+00	.00000E+00	1.31395E-03	.00000E+00	1.98080E+00
8	2.07033E+00	2.09053E-02	2.08273E+00	.00000E+00	.00000E+00	1.25080E-03	.00000E+00	1.43040E+00
9	1.60158E+00	-2.06082E-02	1.58997E+00	.00000E+00	.00000E+00	1.68168E-03	.00000E+00	1.09792E+00
10	1.46325E+00	-2.49887E-02	1.45046E+00	.00000E+00	.00000E+00	3.58150E-03	.00000E+00	1.00232E+00
11	1.33894E+00	-5.50120E-02	1.31053E+00	.00000E+00	.00000E+00	7.79913E-03	.00000E+00	9.10596E-01
12	8.32142E-01	-6.55026E-02	7.98086E-01	.00000E+00	.00000E+00	1.03512E-02	.00000E+00	5.59366E-01
13	6.9958E-01	-5.72788E-02	6.70082E-01	.00000E+00	.00000E+00	1.25294E-02	.00000E+00	4.69906E-01
14	6.22912E-01	-8.79983E-02	5.77028E-01	.00000E+00	.00000E+00	7.72475E-03	.00000E+00	4.10563E-01
15	3.69541E-01	-9.53961E-03	3.64468E-01	.00000E+00	.00000E+00	1.69067E-03	.00000E+00	2.52632E-01
16	2.02246E-01	-7.31179E-03	1.98607E-01	.00000E+00	.00000E+00	1.21258E-03	.00000E+00	1.37796E-01
17	8.14204E-02	-9.71779E-03	7.64719E-02	.00000E+00	.00000E+00	1.25539E-03	.00000E+00	5.40792E-02
18	4.17338E-02	-2.80013E-02	2.34500E-02	.00000E+00	.00000E+00	7.33272E-04	.00000E+00	2.10149E-02
19	1.18918E-01	-1.56190E-02	1.10714E-01	.00000E+00	.00000E+00	2.00413E-03	.00000E+00	7.86402E-02

20	4.18359E-01	-2.67453E-02	4.04792E-01	.00000E+00	.00000E+00	1.39996E-02	.00000E+00	2.82661E-01
21	1.10135E-01	-2.50566E-02	9.68741E-02	.00000E+00	.00000E+00	1.54127E-02	.00000E+00	7.05084E-02
22	1.92276E-01	-7.16532E-02	1.51921E-01	.00000E+00	.00000E+00	4.42529E-02	.00000E+00	1.16059E-01
23	6.82388E-01	-1.23805E-01	6.19016E-01	.00000E+00	.00000E+00	7.05656E-02	.00000E+00	4.44549E-01
24	5.21309E-01	-1.06097E-01	4.67341E-01	.00000E+00	.00000E+00	6.12938E-02	.00000E+00	3.37362E-01
25	2.23357E-01	-5.27962E-02	1.96003E-01	.00000E+00	.00000E+00	3.45226E-02	.00000E+00	1.42843E-01
26	1.45875E-01	-4.85021E-02	1.20267E-01	.00000E+00	.00000E+00	3.16494E-02	.00000E+00	9.01527E-02
27	2.38426E-02	-1.35299E-02	1.60728E-02	.00000E+00	.00000E+00	8.98464E-03	.00000E+00	1.32570E-02
28	2.31429E+01	5.79064E-02	2.31043E+01	.00000E+00	.00000E+00	2.34167E-03	3.72332E-01	.00000E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-08	9.99999E-01
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.19209E-07	9.99999E-01
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.79397E-08	9.99999E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.21541E-08	9.99997E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.89179E-08	9.99997E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-08	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.04891E-08	9.99998E-01
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.95229E-07	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.78205E-01	1.15058E-02	1.78643E-01	1.15058E-02	.00000E+00	.00000E+00	.00000E+00	5.66224E-03
2	1.25058E+00	1.16535E-01	1.29471E+00	1.16535E-01	.00000E+00	.00000E+00	.00000E+00	4.10212E-02
3	1.62183E+00	1.45627E-01	1.62667E+00	1.45627E-01	.00000E+00	.00000E+00	.00000E+00	5.15445E-02
4	1.00439E+00	8.76426E-02	1.00705E+00	8.76426E-02	.00000E+00	.00000E+00	.00000E+00	3.19159E-02
5	1.51498E+00	1.33002E-01	1.51879E+00	1.33002E-01	.00000E+00	.00000E+00	.00000E+00	4.81369E-02
6	2.91103E+00	2.50401E-01	2.91785E+00	2.50401E-01	.00000E+00	.00000E+00	.00000E+00	9.24872E-02
7	2.83474E+00	1.42050E-01	2.83849E+00	1.42050E-01	.00000E+00	.00000E+00	.00000E+00	9.00186E-02
8	2.07006E+00	2.09053E-02	2.07039E+00	2.09053E-02	.00000E+00	.00000E+00	.00000E+00	6.57058E-02
9	1.60234E+00	-2.06081E-02	1.60158E+00	-2.06082E-02	.00000E+00	.00000E+00	.00000E+00	5.08388E-02
10	1.46334E+00	-2.49886E-02	1.46325E+00	-2.49887E-02	.00000E+00	.00000E+00	.00000E+00	4.64478E-02
11	1.34045E+00	-5.50120E-02	1.33894E+00	-5.50120E-02	.00000E+00	.00000E+00	.00000E+00	4.25163E-02
12	8.39984E-01	-6.55026E-02	8.32142E-01	-6.55026E-02	.00000E+00	.00000E+00	.00000E+00	2.64382E-02
13	7.01173E-01	-5.72788E-02	6.99558E-01	-5.72788E-02	.00000E+00	.00000E+00	.00000E+00	2.22259E-02
14	6.25389E-01	-8.79984E-02	6.22912E-01	-8.79983E-02	.00000E+00	.00000E+00	.00000E+00	1.98086E-02
15	3.68814E-01	-9.53959E-03	3.69541E-01	-9.53961E-03	.00000E+00	.00000E+00	.00000E+00	1.17321E-02
16	2.02453E-01	-7.31179E-03	2.02246E-01	-7.31179E-03	.00000E+00	.00000E+00	.00000E+00	6.42173E-03
17	8.16934E-02	-9.71775E-03	8.14204E-02	-9.71775E-03	.00000E+00	.00000E+00	.00000E+00	2.58844E-03
18	4.25738E-02	-2.80013E-02	4.17338E-02	-2.80013E-02	.00000E+00	.00000E+00	.00000E+00	1.33810E-03
19	1.19344E-01	-1.56190E-02	1.18918E-01	-1.56190E-02	.00000E+00	.00000E+00	.00000E+00	3.78101E-03
20	4.19102E-01	-2.67453E-02	4.18359E-01	-2.67453E-02	.00000E+00	.00000E+00	.00000E+00	1.32852E-02

21	1.10828E-01	-2.50569E-02	1.10135E-01	-2.50569E-02	.00000E+00	.00000E+00	.00000E+00	3.50559E-03
22	1.94278E-01	-7.16532E-02	1.92276E-01	-7.16532E-02	.00000E+00	.00000E+00	.00000E+00	6.13453E-03
23	6.85683E-01	-1.23805E-01	6.82388E-01	-1.23805E-01	.00000E+00	.00000E+00	.00000E+00	2.17091E-02
24	5.24079E-01	-1.06097E-01	5.21309E-01	-1.06097E-01	.00000E+00	.00000E+00	.00000E+00	1.65887E-02
25	2.24735E-01	-5.27962E-02	2.2357E-01	-5.27962E-02	.00000E+00	.00000E+00	.00000E+00	7.11064E-03
26	1.47106E-01	-4.85021E-02	1.45875E-01	-4.85021E-02	.00000E+00	.00000E+00	.00000E+00	4.64934E-03
27	2.41885E-02	-1.35299E-02	2.39426E-02	-1.35299E-02	.00000E+00	.00000E+00	.00000E+00	7.62287E-04
28	2.31390E+01	5.79058E-02	2.31429E+01	5.79064E-02	.00000E+00	.00000E+00	.00000E+00	7.34381E-01

ifine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	out scatter	sif scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.92766E-03	2.94428E-03	1.50892E-05	-2.85434E-03	1.00001E+00
2	.00000E+00	.00000E+00	5.14212E-04	2.62972E-02	1.88695E-02	5.22437E-05	-1.84078E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.69852E-03	5.04487E-02	1.59513E-02	1.37981E-04	-1.33897E-02	9.99999E-01
4	.00000E+00	.00000E+00	5.19375E-03	4.22522E-02	5.47074E-03	1.05724E-04	-3.80322E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.11840E-02	8.17850E-02	5.17228E-03	1.52364E-04	5.85908E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85328E-02	2.35164E-01	3.21300E-03	3.20227E-04	1.50996E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.25767E-02	2.35290E-01	1.18289E-03	3.44904E-04	1.08493E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.16900E-03	1.58719E-01	7.64257E-03	2.95174E-04	-5.78628E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.67613E-03	1.05369E-01	8.78370E-04	1.11110E-03	5.68689E-03	9.99990E-01
10	.00000E+00	.00000E+00	8.79557E-04	8.58097E-02	8.51381E-04	8.37989E-04	-8.09861E-04	1.00000E+00
11	.00000E+00	.00000E+00	8.51443E-04	7.73499E-02	8.73519E-04	1.34209E-03	-1.36416E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.73525E-04	4.69886E-02	8.73277E-04	4.17908E-05	-4.15519E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.73278E-04	3.94928E-02	8.05625E-04	5.99614E-05	7.74115E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.05625E-04	3.54901E-02	6.68816E-04	9.45295E-05	4.23193E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.11807E-04	2.03544E-02	8.33038E-04	8.17407E-05	-2.03708E-04	1.00007E+00
16	.00000E+00	.00000E+00	9.26294E-04	1.06770E-02	9.24964E-04	5.03129E-05	-4.94584E-05	1.00006E+00
17	.00000E+00	.00000E+00	9.70918E-04	3.78399E-03	9.31292E-04	2.28563E-05	1.67394E-05	1.00000E+00
18	.00000E+00	.00000E+00	9.73845E-04	1.96598E-03	6.28349E-04	1.33280E-05	3.32095E-04	1.00000E+00
19	.00000E+00	.00000E+00	6.85313E-04	6.00804E-03	8.8432E-04	3.89239E-05	-2.40121E-04	1.00000E+00
20	.00000E+00	.00000E+00	1.05638E-03	2.30911E-02	9.81685E-04	1.71684E-04	-9.77423E-05	1.00008E+00
21	.00000E+00	.00000E+00	1.19553E-03	5.20795E-03	1.24399E-03	5.73756E-05	-1.05906E-04	1.00000E+00
22	.00000E+00	.00000E+00	1.57133E-03	1.00930E-02	1.34889E-03	1.17601E-04	1.04651E-04	1.00000E+00
23	.00000E+00	.00000E+00	2.04398E-03	3.70180E-02	2.71774E-03	5.60608E-04	-1.23431E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.37802E-03	2.67407E-02	3.69976E-03	6.22915E-04	-9.14447E-04	9.99998E-01
25	.00000E+00	.00000E+00	3.31770E-03	1.03898E-02	2.67419E-03	3.53384E-04	2.90211E-04	9.99998E-01
26	.00000E+00	.00000E+00	1.39170E-03	7.59797E-03	1.00409E-03	3.31774E-04	5.57713E-05	1.00000E+00
27	.00000E+00	.00000E+00	2.91152E-04	1.43516E-03	7.39446E-07	1.04989E-04	1.85400E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.32426E-02	1.38857E+00	8.32426E-02	7.43662E-03	-7.33284E-03	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*cb**2	total flux
1	1.76518E-01	8.45149E-03	1.78205E-01	1.19058E-02	1.05198E-04	.00000E+00	.00000E+00	3.84029E-02
2	1.27280E+00	9.81276E-02	1.29058E+00	1.16535E-01	.00000E+00	.00000E+00	.00000E+00	2.77507E-01
3	1.59866E+00	1.32237E-01	1.62183E+00	1.45627E-01	.00000E+00	.00000E+00	.00000E+00	3.48733E-01
4	9.89769E-01	8.72623E-02	1.00439E+00	8.76426E-02	.00000E+00	.00000E+00	.00000E+00	2.16013E-01
5	1.49192E+00	1.38861E-01	1.51498E+00	1.33002E-01	.00000E+00	.00000E+00	.00000E+00	3.25778E-01
6	2.85549E+00	2.65500E-01	2.91103E+00	2.50401E-01	.00000E+00	.00000E+00	.00000E+00	6.25897E-01
7	2.80853E+00	1.52899E-01	2.83474E+00	1.42050E-01	.00000E+00	.00000E+00	.00000E+00	6.11500E-01
8	2.06691E+00	1.51360E-02	2.07006E+00	2.09053E-02	.00000E+00	.00000E+00	.00000E+00	4.48215E-01
9	1.60540E+00	-1.49212E-02	1.60294E+00	-2.06081E-02	.00000E+00	.00000E+00	.00000E+00	3.47666E-01
10	1.46814E+00	-2.57984E-02	1.46394E+00	-2.49886E-02	.00000E+00	.00000E+00	.00000E+00	3.17741E-01
11	1.34956E+00	-5.63761E-02	1.34045E+00	-5.50120E-02	.00000E+00	.00000E+00	.00000E+00	2.91536E-01
12	8.44656E-01	-6.55441E-02	8.33984E-01	-6.55026E-02	.00000E+00	.00000E+00	.00000E+00	1.81964E-01
13	7.10543E-01	-5.72711E-02	7.01173E-01	-5.72788E-02	.00000E+00	.00000E+00	.00000E+00	1.53032E-01
14	6.39738E-01	-8.79560E-02	6.25399E-01	-8.79984E-02	.00000E+00	.00000E+00	.00000E+00	1.37178E-01
15	3.71482E-01	-9.74330E-03	3.69814E-01	-9.53959E-03	.00000E+00	.00000E+00	.00000E+00	8.03365E-02
16	2.08657E-01	-7.36125E-03	2.02453E-01	-7.31179E-03	.00000E+00	.00000E+00	.00000E+00	4.40141E-02
17	8.32672E-02	-9.70101E-03	8.16284E-02	-9.71775E-03	.00000E+00	.00000E+00	.00000E+00	1.78960E-02
18	4.72122E-02	-2.76692E-02	4.25738E-02	-2.80013E-02	.00000E+00	.00000E+00	.00000E+00	9.76514E-03
19	1.21892E-01	-1.58591E-02	1.19344E-01	-1.56190E-02	.00000E+00	.00000E+00	.00000E+00	2.61554E-02
20	4.23401E-01	-2.68431E-02	4.19102E-01	-2.67453E-02	.00000E+00	.00000E+00	.00000E+00	9.13242E-02
21	1.14803E-01	-2.51628E-02	1.10828E-01	-2.50569E-02	.00000E+00	.00000E+00	.00000E+00	2.44765E-02

22	2.0548E-01	-7.1548E-02	1.9427E-01	-7.1652E-02	.0000E+00	.0000E+00	.0000E+00	4.34067E-02
23	7.0430E-01	-1.2503E-01	6.8568E-01	-1.2380E-01	.0000E+00	.0000E+00	.0000E+00	1.50752E-01
24	5.3932E-01	-1.0701E-01	5.2407E-01	-1.0609E-01	.0000E+00	.0000E+00	.0000E+00	1.15356E-01
25	2.3197E-01	-5.2506E-02	2.2473E-01	-5.2792E-02	.0000E+00	.0000E+00	.0000E+00	4.95621E-02
26	1.5340E-01	-4.8446E-02	1.4710E-01	-4.8502E-02	.0000E+00	.0000E+00	.0000E+00	3.26346E-02
27	2.5866E-02	-1.3344E-02	2.4188E-02	-1.3529E-02	.0000E+00	.0000E+00	.0000E+00	5.44733E-03
28	2.3114E+01	5.0572E-02	2.3139E+01	5.7905E-02	1.0519E-04	.0000E+00	.0000E+00	5.01228E+00
lfine group summary for zone 4 by group including sum for all groups in line 28								
0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	6.2059E-03	8.2141E-03	4.3777E-04	-8.6514E-03	9.99950E-01
2	.0000E+00	.0000E+00	4.7131E-03	7.7420E-02	1.0175E-01	1.0902E-03	-9.8127E-02	9.99961E-01
3	.0000E+00	.0000E+00	4.8303E-02	6.9901E-02	1.8053E-01	5.4539E-05	-1.3223E-01	9.99977E-01
4	.0000E+00	.0000E+00	7.0815E-02	4.6007E-02	1.5807E-01	3.2417E-05	-8.7262E-02	9.99987E-01
5	.0000E+00	.0000E+00	1.3063E-01	1.4875E-01	2.6949E-01	3.7816E-05	-1.3886E-01	9.99991E-01
6	.0000E+00	.0000E+00	2.7591E-01	4.5553E-01	5.4140E-01	1.1483E-05	-2.6550E-01	9.99998E-01
7	.0000E+00	.0000E+00	5.5302E-01	7.9545E-01	7.0538E-01	2.5363E-05	-1.5289E-01	9.99998E-01
8	.0000E+00	.0000E+00	7.3597E-01	1.0017E+00	7.5113E-01	4.7050E-05	-1.5136E-02	9.99912E-01
9	.0000E+00	.0000E+00	7.4137E-01	9.1733E-01	7.2644E-01	9.6039E-05	1.4921E-02	9.99889E-01
10	.0000E+00	.0000E+00	7.2303E-01	8.6747E-01	6.9714E-01	2.1196E-04	2.5795E-02	9.99896E-01
11	.0000E+00	.0000E+00	7.0199E-01	8.0815E-01	6.4520E-01	4.5893E-04	5.6376E-02	9.99940E-01
12	.0000E+00	.0000E+00	5.6155E-01	4.2105E-01	4.9542E-01	5.9910E-04	6.5544E-02	9.99979E-01
13	.0000E+00	.0000E+00	4.9138E-01	3.3782E-01	4.3323E-01	8.9733E-04	5.7271E-02	9.99970E-01
14	.0000E+00	.0000E+00	4.7070E-01	3.1920E-01	3.8130E-01	1.4446E-03	8.7956E-02	9.99989E-01
15	.0000E+00	.0000E+00	2.4967E-01	1.2739E-01	2.3866E-01	1.2893E-03	9.7415E-03	1.0000E+00
16	.0000E+00	.0000E+00	1.6523E-01	5.3293E-02	1.5701E-01	8.6289E-04	7.3595E-03	9.99997E-01
17	.0000E+00	.0000E+00	8.4621E-02	1.4322E-02	7.4519E-02	4.0006E-04	9.7054E-03	9.99957E-01
18	.0000E+00	.0000E+00	7.4475E-02	8.5185E-03	4.6549E-02	2.6063E-04	2.7671E-02	9.99983E-01
19	.0000E+00	.0000E+00	1.1986E-01	3.1125E-02	1.0393E-01	6.8283E-04	1.5865E-02	9.99956E-01
20	.0000E+00	.0000E+00	2.9046E-01	2.3057E-01	2.6057E-01	2.9495E-03	2.6841E-02	9.99999E-01
21	.0000E+00	.0000E+00	1.3425E-01	4.1538E-02	1.0805E-01	1.0292E-03	2.5169E-02	9.99960E-01
22	.0000E+00	.0000E+00	2.5168E-01	1.1435E-01	1.7796E-01	2.1737E-03	7.1548E-02	9.99992E-01
23	.0000E+00	.0000E+00	5.8710E-01	6.8854E-01	4.5214E-01	9.9285E-03	1.2506E-01	9.99992E-01
24	.0000E+00	.0000E+00	5.9507E-01	6.1774E-01	4.7686E-01	1.1199E-02	1.0701E-01	9.99990E-01
25	.0000E+00	.0000E+00	3.8495E-01	2.5341E-01	3.2602E-01	6.4275E-03	5.2507E-02	9.99991E-01
26	.0000E+00	.0000E+00	3.0453E-01	2.7049E-01	2.4984E-01	6.2490E-03	4.8437E-02	1.0000E+00
27	.0000E+00	.0000E+00	1.0161E-01	5.6531E-02	8.6120E-02	2.1510E-03	1.3344E-02	1.0000E+00
28	.0000E+00	.0000E+00	8.8535E+00	8.7795E+00	8.8535E+00	5.0915E-02	-5.0567E-02	9.99961E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rn rate	fiss rate	flux*cb**2	total flux
1	1.7569E-01	2.0318E-09	1.7651E-01	8.6514E-03	4.5426E-10	.0000E+00	.0000E+00	2.0108E-01
2	1.2611E+00	-1.4789E-08	1.2728E+00	9.8127E-02	.0000E+00	.0000E+00	.0000E+00	1.4439E+00
3	1.5809E+00	9.3059E-08	1.5986E+00	1.3223E-01	.0000E+00	.0000E+00	.0000E+00	1.8106E+00
4	9.7640E-01	9.5897E-08	9.8976E-01	8.7262E-02	.0000E+00	.0000E+00	.0000E+00	1.1189E+00
5	1.4695E+00	-1.7540E-08	1.4919E+00	1.3886E-01	.0000E+00	.0000E+00	.0000E+00	1.6840E+00
6	2.8215E+00	1.7406E-07	2.8654E+00	2.6550E-01	.0000E+00	.0000E+00	.0000E+00	3.2336E+00
7	2.7832E+00	9.9846E-09	2.8083E+00	1.5289E-01	.0000E+00	.0000E+00	.0000E+00	3.1874E+00
8	2.0669E+00	3.2091E-08	2.0669E+00	1.5136E-02	.0000E+00	.0000E+00	.0000E+00	2.3649E+00
9	1.6074E+00	3.3492E-09	1.6054E+00	-1.4921E-02	.0000E+00	.0000E+00	.0000E+00	1.8364E+00
10	1.4727E+00	3.2165E-08	1.4681E+00	-2.5798E-02	.0000E+00	.0000E+00	.0000E+00	1.6652E+00
11	1.3592E+00	4.9841E-08	1.3495E+00	-5.6376E-02	.0000E+00	.0000E+00	.0000E+00	1.5552E+00
12	8.5588E-01	4.6727E-08	8.4466E-01	-6.5544E-02	.0000E+00	.0000E+00	.0000E+00	9.7875E-01
13	7.1995E-01	5.6155E-09	7.1054E-01	-5.7271E-02	.0000E+00	.0000E+00	.0000E+00	8.2345E-01
14	6.5452E-01	5.2430E-08	6.3973E-01	-8.7956E-02	.0000E+00	.0000E+00	.0000E+00	7.4814E-01
15	3.7222E-01	-1.7288E-06	3.7148E-01	-9.7433E-03	.0000E+00	.0000E+00	.0000E+00	4.2629E-01
16	2.0462E-01	-1.6899E-06	2.0365E-01	-7.3612E-03	.0000E+00	.0000E+00	.0000E+00	2.3423E-01
17	8.4954E-02	4.4341E-06	8.3267E-02	-9.7010E-03	.0000E+00	.0000E+00	.0000E+00	9.7085E-02
18	5.2105E-02	1.9789E-06	4.7212E-02	-2.7662E-02	.0000E+00	.0000E+00	.0000E+00	5.9234E-02
19	1.2449E-01	6.4167E-06	1.2189E-01	-1.5899E-02	.0000E+00	.0000E+00	.0000E+00	1.4234E-01
20	4.2731E-01	-1.5128E-06	4.2340E-01	-2.6843E-02	.0000E+00	.0000E+00	.0000E+00	4.8902E-01
21	1.1934E-01	6.7011E-06	1.1480E-01	-2.5162E-02	.0000E+00	.0000E+00	.0000E+00	1.3621E-01
22	2.1868E-01	4.3347E-07	2.0548E-01	-7.1548E-02	.0000E+00	.0000E+00	.0000E+00	2.49137E-01

23	7.29924E-01	-3.22225E-06	7.04305E-01	-1.25039E-01	.00000E+00	.00000E+00	.00000E+00	8.32454E-01
24	5.65102E-01	9.46228E-07	5.39529E-01	-1.07011E-01	.00000E+00	.00000E+00	.00000E+00	6.42964E-01
25	2.46187E-01	1.11305E-06	2.31970E-01	-5.25060E-02	.00000E+00	.00000E+00	.00000E+00	2.79572E-01
26	1.69172E-01	-8.74975E-06	1.53406E-01	-4.84463E-02	.00000E+00	.00000E+00	.00000E+00	1.90529E-01
27	3.12850E-02	-2.91616E-07	2.58662E-02	-1.33444E-02	.00000E+00	.00000E+00	.00000E+00	3.46002E-02
28	2.31512E+01	5.21995E-06	2.31148E+01	5.05727E-02	4.54265E-10	.00000E+00	.00000E+00	2.64885E+01
1fine group summary for system								
0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.33589E-02	.00000E+00	2.32144E-02	2.20661E-02	3.75289E-03	2.03183E-09	9.98366E-01
2	.00000E+00	1.95084E-01	7.64510E-03	2.72990E-01	1.87909E-01	1.48530E-02	-1.47898E-08	1.00002E+00
3	.00000E+00	2.16057E-01	7.76574E-02	2.81575E-01	2.78102E-01	1.56370E-02	9.30396E-08	9.99986E-01
4	.00000E+00	1.23684E-01	1.15292E-01	1.94029E-01	2.31505E-01	7.47182E-03	9.58997E-08	1.00000E+00
5	.00000E+00	1.63760E-01	2.10169E-01	4.90681E-01	3.69414E-01	4.51906E-03	-1.75408E-08	9.99989E-01
6	.00000E+00	1.76465E-01	4.29656E-01	1.34449E+00	5.98974E-01	7.13818E-03	1.74056E-07	1.00001E+00
7	.00000E+00	8.71164E-02	6.64422E-01	1.77499E+00	7.43044E-01	7.64158E-03	9.98467E-09	9.99990E-01
8	.00000E+00	1.34131E-02	7.80732E-01	1.79078E+00	7.80301E-01	1.39074E-02	3.20919E-08	9.99920E-01
9	.00000E+00	9.73270E-04	7.70802E-01	1.55874E+00	7.48053E-01	2.38051E-02	3.34927E-09	9.99892E-01
10	.00000E+00	7.22858E-05	7.44718E-01	1.41708E+00	7.08746E-01	3.61186E-02	3.21656E-08	9.99900E-01
11	.00000E+00	5.68699E-06	7.13994E-01	1.31219E+00	6.54261E-01	5.93804E-02	4.98413E-08	9.99942E-01
12	.00000E+00	3.99500E-07	5.70611E-01	7.09686E-01	5.05695E-01	6.49518E-02	4.67273E-08	9.99974E-01
13	.00000E+00	6.34349E-08	5.01663E-01	5.58358E-01	4.40194E-01	6.14845E-02	5.61550E-09	9.99971E-01
14	.00000E+00	1.25715E-08	4.77663E-01	5.06764E-01	3.89278E-01	8.83898E-02	5.26303E-08	9.99989E-01
15	.00000E+00	1.42072E-09	2.57774E-01	2.31142E-01	2.48259E-01	9.40814E-03	-1.72885E-06	1.00042E+00
16	.00000E+00	4.17172E-10	1.75068E-01	1.05618E-01	1.67293E-01	7.70273E-03	-1.68979E-06	1.00042E+00
17	.00000E+00	1.34350E-10	9.30263E-02	3.17637E-02	8.25846E-02	1.06141E-02	4.43419E-06	1.00025E+00
18	.00000E+00	9.61905E-11	8.21837E-02	1.76338E-02	5.02962E-02	3.18795E-02	1.97887E-06	1.00007E+00
19	.00000E+00	1.39992E-10	1.26021E-01	5.89845E-02	1.12250E-01	1.37428E-02	6.41674E-06	1.00018E+00
20	.00000E+00	2.21138E-10	3.00499E-01	3.50205E-01	2.70810E-01	2.95815E-02	-1.51288E-06	1.00036E+00
21	.00000E+00	3.23675E-11	1.43927E-01	6.57911E-02	1.16735E-01	2.71648E-02	6.70112E-06	1.00014E+00
22	.00000E+00	3.75537E-11	2.64136E-01	1.59967E-01	1.87339E-01	7.67529E-02	4.33473E-07	1.00016E+00
23	.00000E+00	3.59055E-11	6.02026E-01	8.76009E-01	4.71443E-01	1.30417E-01	-3.22225E-06	1.00028E+00
24	.00000E+00	9.77301E-12	6.18901E-01	7.51209E-01	5.01237E-01	1.17538E-01	9.46228E-07	1.00020E+00
25	.00000E+00	2.86090E-12	4.06057E-01	3.04507E-01	3.42202E-01	6.37821E-02	1.11305E-06	1.00013E+00
26	.00000E+00	2.00608E-12	3.14728E-01	3.06639E-01	2.56956E-01	5.77364E-02	-8.74975E-06	1.00014E+00
27	.00000E+00	4.78059E-13	1.03823E-01	6.22789E-02	8.71758E-02	1.66419E-02	-2.91616E-07	1.00005E+00
28	.00000E+00	1.00000E+00	9.95279E+00	1.55667E+01	9.95278E+00	1.00197E+00	5.39736E-06	1.00004E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	fluk*cb**2	total flux
1	1.75698E-01	2.03183E-09	1.83726E-01	.00000E+00	2.43004E-03	2.69862E-03	.00000E+00	3.70280E-01
2	1.26115E+00	-1.47898E-08	1.34641E+00	.00000E+00	1.68246E-05	1.19016E-02	.00000E+00	2.67534E+00
3	1.58097E+00	9.30396E-08	1.69099E+00	.00000E+00	.00000E+00	1.44679E-02	.00000E+00	3.35701E+00
4	9.76608E-01	9.58997E-08	1.04479E+00	.00000E+00	.00000E+00	6.22017E-03	.00000E+00	2.07560E+00
5	1.46956E+00	-1.75408E-08	1.57771E+00	.00000E+00	.00000E+00	1.76645E-03	.00000E+00	3.12746E+00
6	2.82158E+00	1.74066E-07	3.03090E+00	.00000E+00	.00000E+00	1.42756E-03	.00000E+00	6.00588E+00
7	2.78328E+00	9.98467E-09	2.90573E+00	.00000E+00	.00000E+00	1.31995E-03	.00000E+00	5.86978E+00
8	2.06693E+00	3.20919E-08	2.08273E+00	.00000E+00	.00000E+00	1.29080E-03	.00000E+00	4.30928E+00
9	1.60744E+00	3.34927E-09	1.58997E+00	.00000E+00	.00000E+00	1.68168E-03	.00000E+00	3.33607E+00
10	1.47275E+00	3.21656E-08	1.45046E+00	.00000E+00	.00000E+00	3.58150E-03	.00000E+00	3.05175E+00
11	1.39592E+00	4.98413E-08	1.31053E+00	.00000E+00	.00000E+00	7.79913E-03	.00000E+00	2.79986E+00
12	8.55889E-01	4.67273E-08	7.98086E-01	.00000E+00	.00000E+00	1.05122E-02	.00000E+00	1.74652E+00
13	7.19954E-01	5.61550E-09	6.70082E-01	.00000E+00	.00000E+00	1.25294E-02	.00000E+00	1.46861E+00
14	6.54521E-01	5.26303E-08	5.77028E-01	.00000E+00	.00000E+00	7.72475E-03	.00000E+00	1.31566E+00
15	3.72221E-01	-1.72885E-06	3.64468E-01	.00000E+00	.00000E+00	1.69067E-03	.00000E+00	7.70792E-01
16	2.04622E-01	-1.68979E-06	1.98607E-01	.00000E+00	.00000E+00	1.21258E-03	.00000E+00	4.22462E-01
17	8.49554E-02	4.43419E-06	7.64719E-02	.00000E+00	.00000E+00	1.25355E-03	.00000E+00	1.71639E-01
18	5.21059E-02	1.97887E-06	2.34500E-02	.00000E+00	.00000E+00	7.33272E-04	.00000E+00	9.13507E-02
19	1.24492E-01	6.41674E-06	1.10714E-01	.00000E+00	.00000E+00	2.00413E-03	.00000E+00	2.50918E-01
20	4.27318E-01	-1.51288E-06	4.04792E-01	.00000E+00	.00000E+00	1.39996E-02	.00000E+00	8.76302E-01
21	1.19943E-01	6.70112E-06	9.68741E-02	.00000E+00	.00000E+00	1.54127E-02	.00000E+00	2.34703E-01
22	2.18580E-01	4.33473E-07	1.51921E-01	.00000E+00	.00000E+00	4.42529E-02	.00000E+00	4.14737E-01
23	7.29924E-01	-3.22225E-06	6.19016E-01	.00000E+00	.00000E+00	7.05666E-02	.00000E+00	1.44946E+00

26	5.65102E-01	9.46298E-07	4.67341E-01	.00000E+00	.00000E+00	6.12938E-02	.00000E+00	1.11227E+00
25	2.46187E-01	1.11305E-06	1.96009E-01	.00000E+00	.00000E+00	3.45226E-02	.00000E+00	4.78887E-01
26	1.69172E-01	-8.74975E-06	1.20257E-01	.00000E+00	.00000E+00	3.16494E-02	.00000E+00	3.17966E-01
27	3.12850E-02	-2.91616E-07	1.60728E-02	.00000E+00	.00000E+00	8.98464E-03	.00000E+00	5.40468E-02
28	2.31512E+01	5.21995E-06	2.31043E+01	.00000E+00	2.44686E-03	3.72332E-01	.00000E+00	4.81547E+01

- elapsed time .00 min.

Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.45899E-03	2.51122E-02	3.15610E-02	1.90889E-02	2.90346E-02	5.55033E-02	3.15969E-02	4.66847E-03
2	3.85780E-03	3.91746E-02	4.89541E-02	2.94619E-02	4.47099E-02	8.41748E-02	4.77516E-02	7.02753E-03
3	3.14281E-03	3.34202E-02	4.32200E-02	2.71747E-02	4.22143E-02	8.00934E-02	4.57827E-02	5.62349E-03
4	1.09489E-03	1.22971E-02	1.65657E-02	1.09273E-02	1.73834E-02	3.32405E-02	1.92173E-02	2.02157E-03
5	1.79607E-03	1.91449E-02	2.47951E-02	1.55844E-02	2.42392E-02	4.62590E-02	2.65130E-02	3.34840E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.61272E-03	5.59994E-03	1.22953E-02	1.45827E-02	1.27543E-02	1.94613E-02	2.15574E-03	1.63485E-03
2	6.92764E-03	8.40018E-03	1.84928E-02	2.20194E-02	1.92549E-02	2.95815E-02	3.20688E-03	2.45795E-03
3	5.54256E-03	7.88991E-03	1.72994E-02	2.03592E-02	1.77866E-02	2.73365E-02	2.99527E-03	2.27942E-03
4	1.83450E-03	3.21098E-03	7.02679E-03	8.17550E-03	7.18124E-03	1.09889E-02	1.29434E-03	9.42618E-04
5	3.21719E-03	4.56712E-03	1.00138E-02	1.17744E-02	1.03139E-02	1.57767E-02	1.78552E-03	1.33387E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	2.14701E-03	5.47367E-03	3.51060E-03	5.99072E-03	5.46607E-03	1.53156E-02	2.73227E-02	2.33289E-02
2	3.26686E-03	9.41307E-03	5.25072E-03	8.99094E-03	8.42348E-03	2.40870E-02	4.16175E-02	3.56646E-02
3	3.01702E-03	8.64944E-03	4.89059E-03	8.32569E-03	7.80167E-03	2.22477E-02	3.86547E-02	3.31035E-02
4	1.20694E-03	3.41263E-03	1.99330E-03	3.42387E-03	3.13115E-03	8.90294E-03	1.58649E-02	1.35687E-02
5	1.73774E-03	4.73108E-03	2.84648E-03	4.86813E-03	4.47043E-03	1.26449E-02	2.24202E-02	1.91671E-02
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	1.15586E-02	1.04798E-02	2.79811E-03	3.85460E-01				
2	1.77478E-02	1.63040E-02	4.54813E-03	5.90777E-01				
3	1.63609E-02	1.50615E-02	4.17803E-03	5.44456E-01				
4	6.64134E-03	6.01781E-03	1.53054E-03	2.19088E-01				
5	9.44909E-03	8.59193E-03	2.27131E-03	3.13661E-01				

1 1200 d, sas2h: balcock wilcox 15x15, 3.00wt%, 20gnd/mtu burn high temp

Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.81752E-01	1.32597E+00	1.66469E+00	1.02951E+00	1.55349E+00	2.98353E+00	2.87721E+00	2.07774E+00
2	1.78421E-01	1.29261E+00	1.62420E+00	1.00569E+00	1.51683E+00	2.91434E+00	2.83659E+00	2.07044E+00
3	1.77197E-01	1.28046E+00	1.60911E+00	9.96720E-01	1.50319E+00	2.88799E+00	2.82156E+00	2.06814E+00
4	1.75694E-01	1.26160E+00	1.58203E+00	9.77606E-01	1.47139E+00	2.82516E+00	2.78493E+00	2.06629E+00
5	1.77896E-01	1.28533E+00	1.61283E+00	9.97192E-01	1.50255E+00	2.88544E+00	2.82009E+00	2.07033E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59479E+00	1.45692E+00	1.32269E+00	8.12509E-01	6.82563E-01	5.96366E-01	3.66670E-01	2.00156E-01
2	1.60197E+00	1.46340E+00	1.33972E+00	8.33088E-01	7.00887E-01	6.24183E-01	3.69686E-01	2.02353E-01
3	1.60419E+00	1.46611E+00	1.34519E+00	8.39610E-01	7.05114E-01	6.32562E-01	3.70686E-01	2.03088E-01
4	1.60732E+00	1.47242E+00	1.35881E+00	8.55150E-01	7.19460E-01	6.53638E-01	3.72458E-01	2.04650E-01
5	1.60277E+00	1.46617E+00	1.34515E+00	8.39092E-01	7.05576E-01	6.32092E-01	3.70317E-01	2.02966E-01
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.85529E-02	3.05252E-02	1.14229E-01	4.10580E-01	1.08417E-01	1.68582E-01	6.45731E-01	4.90056E-01
2	8.15657E-02	4.21646E-02	1.19142E-01	4.18751E-01	1.10495E-01	1.93304E-01	6.84069E-01	5.22722E-01
3	8.25289E-02	4.50625E-02	1.20686E-01	4.21385E-01	1.12999E-01	2.00285E-01	6.95996E-01	5.32270E-01
4	8.48246E-02	5.17515E-02	1.24366E-01	4.27270E-01	1.19010E-01	2.17674E-01	7.27327E-01	5.61766E-01
5	8.24615E-02	4.39882E-02	1.20550E-01	4.21007E-01	1.12780E-01	1.99255E-01	6.96375E-01	5.34375E-01
Ozone	grp. 25	grp. 26	grp. 27					
1	2.07487E-01	1.30952E-01	1.92274E-02					
2	2.24051E-01	1.46505E-01	2.40202E-02					
3	2.28688E-01	1.50581E-01	2.51349E-02					
4	2.44091E-01	1.66468E-01	3.02307E-02					
5	2.30079E-01	1.52762E-01	2.99661E-02					

Oflux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02168E+00	1.03162E+00	1.03214E+00	1.03241E+00	1.03390E+00	1.03399E+00	1.02027E+00	1.00588E+00
2	1.00295E+00	1.00566E+00	1.00705E+00	1.00853E+00	1.00951E+00	1.01002E+00	1.00586E+00	1.00005E+00
3	9.96074E-01	9.96214E-01	9.97694E-01	9.99526E-01	1.00043E+00	1.00088E+00	1.00053E+00	9.98999E-01
4	9.87624E-01	9.81542E-01	9.80895E-01	9.80358E-01	9.79262E-01	9.79108E-01	9.87545E-01	9.98048E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.95022E-01	9.93010E-01	9.83299E-01	9.68320E-01	9.67385E-01	9.43477E-01	9.50153E-01	9.86154E-01
2	9.99498E-01	9.98247E-01	9.99595E-01	9.92844E-01	9.92646E-01	9.87487E-01	9.98298E-01	9.96982E-01
3	1.00089E+00	9.99957E-01	1.00003E+00	1.00062E+00	1.00076E+00	1.00137E+00	1.00100E+00	1.00060E+00
4	1.00284E+00	1.00426E+00	1.01015E+00	1.01914E+00	1.01968E+00	1.03409E+00	1.00578E+00	1.00830E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.52602E-01	6.95522E-01	9.47565E-01	9.75233E-01	9.08278E-01	8.46065E-01	9.27274E-01	9.17026E-01
2	9.89113E-01	9.60728E-01	9.88321E-01	9.94640E-01	9.79918E-01	9.70132E-01	9.82328E-01	9.78198E-01
3	1.00082E+00	1.02678E+00	1.00112E+00	1.00090E+00	1.00159E+00	1.00517E+00	9.98881E-01	9.96652E-01
4	1.02856E+00	1.17917E+00	1.03165E+00	1.01488E+00	1.05543E+00	1.09244E+00	1.04449E+00	1.05126E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 25	grp. 26	grp. 27					
1	9.01825E-01	8.57224E-01	7.40483E-01					
2	9.73862E-01	9.59036E-01	9.25062E-01					
3	9.98971E-01	9.85722E-01	9.67991E-01					
4	1.06092E+00	1.08972E+00	1.16424E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.45899E-03	2.51122E-02	3.15610E-02	1.90888E-02	2.90346E-02	5.55038E-02	3.15969E-02	4.66847E-03
2	3.85780E-03	3.91746E-02	4.89541E-02	2.94619E-02	4.47099E-02	8.41748E-02	4.77516E-02	7.02753E-03
3	3.14281E-03	3.34202E-02	4.32200E-02	2.71747E-02	4.22143E-02	8.00934E-02	4.57827E-02	5.62349E-03
4	1.08488E-03	1.22971E-02	1.65667E-02	1.09273E-02	1.73834E-02	3.32405E-02	1.92173E-02	2.02157E-03
5	1.79607E-03	1.91449E-02	2.47951E-02	1.55844E-02	2.42392E-02	4.62590E-02	2.65130E-02	3.34840E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.61272E-03	5.59994E-03	1.22953E-02	1.45827E-02	1.27543E-02	1.94613E-02	2.15574E-03	1.63485E-03
2	6.92764E-03	8.40018E-03	1.84928E-02	2.20194E-02	1.92549E-02	2.95815E-02	3.20688E-03	2.45795E-03
3	5.54298E-03	7.88691E-03	1.72994E-02	2.08592E-02	1.77966E-02	2.73365E-02	2.99527E-03	2.27942E-03
4	1.83450E-03	3.21098E-03	7.02679E-03	8.17550E-03	7.18124E-03	1.09888E-02	1.29434E-03	9.42618E-04
5	3.21719E-03	4.56712E-03	1.00138E-02	1.17744E-02	1.03139E-02	1.57767E-02	1.78552E-03	1.33387E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	2.14701E-03	5.47367E-03	3.51060E-03	5.99072E-03	5.46607E-03	1.53156E-02	2.73227E-02	2.33268E-02
2	3.26685E-03	9.41307E-03	5.25072E-03	8.99094E-03	8.42948E-03	2.40870E-02	4.16179E-02	3.56446E-02
3	3.01702E-03	8.64944E-03	4.89058E-03	8.32569E-03	7.80167E-03	2.22477E-02	3.88547E-02	3.31035E-02
4	1.20694E-03	3.41263E-03	1.99530E-03	3.42987E-03	3.13113E-03	8.90294E-03	1.58649E-02	1.35687E-02
5	1.73774E-03	4.73108E-03	2.84648E-03	4.86813E-03	4.47043E-03	1.26449E-02	2.24202E-02	1.91671E-02
Ozone	grp. 25	grp. 26	grp. 27					
1	1.15586E-02	1.04798E-02	2.79811E-03					
2	1.77478E-02	1.63040E-02	4.54813E-03					
3	1.63609E-02	1.50615E-02	4.17803E-03					
4	6.64134E-03	6.01781E-03	1.53064E-03					
5	9.44909E-03	8.59198E-03	2.27131E-03					

Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

- elapsed time .02 min.
 Orequested parm#hl t8, skipcell lwt, skipship dbta

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pass= 8, exec halts after pass 8
1 1111111111 0000000000 m m aaaaaaaaaa mm mm iiiiiiiiii 22222222
1111111111 000000000000 mm m iiiiiiiiii 2222222222
bb bb oo oo mm m 22 22
bb bb oo oo mm m 22 22
bb bb oo oo mm m 22 22
1111111111 00 00 m m m ----- aaaaaaaaaa mm mm ii
1111111111 00 00 m m m ----- aaaaaaaaaa mm m mm ii
bb bb oo oo m m m 22 22
bb bb oo oo m m m 22 22
bb bb oo oo m m m 22 22
1111111111 000000000000 m m iiiiiiiiii 2222222222
1111111111 00000000000 m m iiiiiiiiii 2222222222
0

```

```

1111111111 aaaaaaaaaa w w iiiiiiiiii ssssssssss
1111111111 aa aaaaaaaa w w iiiiiiiiii ssssssssss
dd dd aa aa w w ii ss
dd dd aa aa w w w w ii ss
dd dd aa aa w w w w ii ss
1111111111 aaaaaaaaaa w w w w ii ssssssssss
1111111111 aaaaaaaaaa w w w w ii ssssssssss
dd dd aa aa w w w w ii ss
dd dd aa aa w w w w ii ss
dd dd aa aa w w w w ii ss
1111111111 aa aa w w w w ii ssssssssss
1111111111 aa aa w w w w iiiiiiiiii ssssssssss
0

```

```

00000000 22222222 // 11 66666666 // 99999999 66666666
0000000000 2222222222 // 1111 6666666666 // 9999999999 6666666666
oo oo 22 22 1111 66 66 99 99 66
oo oo 22 22 11 66 66 99 99 66
oo oo 22 22 11 6666666666 // 9999999999 6666666666
oo oo 22 22 11 6666666666 // 9999999999 6666666666
oo oo 22 22 11 66 66 99 66 66
oo oo 22 22 11 66 66 99 66 66
oo oo 22 22 11 66 66 99 66 66
00000000 22222222 // 11111111 6666666666 // 9999999999 6666666666
00000000 2222222222 // 11111111 6666666666 // 9999999999 6666666666
0

```

```

11 000000 00000000 6666666666 000000 9999999999
1111 0000000000 6666666666 0000000000 9999999999
11 00 00 66 66 00 99 99
11 00 00 66 66 00 99 99
11 00 00 6666666666 00 00 9999999999
11 00 00 6666666666 00 00 9999999999
11 00 00 66 66 00 99
11 00 00 66 66 00 99
11111111 00000000 00000000 6666666666 00000000 9999999999
11111111 000000 000000 6666666666 000000 9999999999
0

```

```

1 ssssssssssss ccccccccccc aaaaaaaaaa ll
0 ssssssssssss ccccccccccc aaaaaaaaaa ll
ss ss cc cc aa aa ll
ss cc cc aa aa ll

```

```

SS           CC          aa      aa  ll            ee
SSSSSSSSSS  CC          aaaaaaaaaa ll           eeeeeeee
SSSSSSSSSS  CC          aaaaaaaaaa ll           eeeeeeee
             SS         aa      aa  ll            ee
             SS         aa      aa  ll            ee
             SS         aa      aa  ll            ee
SS         SS  CC          CC  aa      aa  ll            ee
SSSSSSSSSS  CCCCCCCCCCC  aa      aa  ll            eeeeeeeeeee
SSSSSSSSSS  CCCCCCCCCCC  aa      aa  ll            eeeeeeeeeee
  
```

```

*****
*****
*****
*****
               program verification information
*****
               code system: scale version: 4.2
*****
*****
               program: c0c008
*****
               creation date: 04/27/95
*****
               library: /neutronics/scale/exe
*****
               this is not a scale configuration controlled code
*****
               jobname: davis
*****
               date of execution: 02/16/96
*****
               time of execution: 10:06:09
*****
*****
*****
  
```

```

1
0      -lq array has      1 entries.
0      0q array has      4 entries.
0      1q array has      6 entries.
0      2q array has      2 entries.
1logical assignments
0master library 12
0working library 17
0scratch file 18
0new library 1
0problem description
0iqr--geometry (0/1/2/3--inf med/slab/cyl/sphere)      2
0iqr--number of zones or material regions                4
0iqr--mixing table length                                70
0ibl--shielded cross section edit option (0/1--no/yes)  0
0ibr--bordarenko factor edit option (0/1--no/yes)       0
  
```

Disscpt-dancoff factor option 0
 Convergence criterion 1.0000E-03
 Geometry correction factor for wigner rational approximation 1.350E+00
 0 3q array has 70 entries.
 0 4q array has 70 entries.
 0 5q array has 70 entries.
 0 6q array has 4 entries.
 0 7q array has 4 entries.
 0 8q array has 4 entries.
 0 9q array has 4 entries.
 0 10q array has 70 entries.
 0 11q array has 4 entries.

Onixing table

Entry	mixture	isotope	number density	new identifier
1	3	8016	2.09710E-02	201
2	3	1001	4.19420E-02	202
3	3	5010	3.81515E-06	203
4	3	5011	1.54884E-05	204
5	2	40802	4.25156E-02	205
6	1	92235	1.08967E-04	20006
7	1	92234	1.35829E-06	20007
8	1	92236	2.22566E-05	20008
9	1	92238	7.18805E-08	20009
10	1	8016	1.50611E-02	20010
11	1	8016	1.15315E-02	20011
12	1	36083	5.99894E-07	20012
13	1	36085	2.88343E-07	20013
14	1	38090	6.63490E-06	20014
15	1	39089	5.44444E-06	20015
16	1	42095	7.62439E-06	20016
17	1	40093	5.44388E-06	20017
18	1	40094	8.64059E-06	20018
19	1	40095	6.37209E-07	20019
20	1	41094	4.73664E-12	20020
21	1	43099	8.45055E-06	20021
22	1	45103	4.73364E-06	20022
23	1	45105	8.33256E-09	20023
24	1	44101	7.83094E-06	20024
25	1	44106	1.16052E-06	20025
26	1	46105	3.41731E-06	20026
27	1	46108	1.04931E-06	20027
28	1	47109	7.05166E-07	20028
29	1	51124	1.55246E-10	20029
30	1	54131	3.79879E-06	20030
31	1	54132	7.71300E-06	20031
32	1	54135	2.19622E-09	20032
33	1	54136	1.49360E-05	20033
34	1	55134	5.39516E-07	20034
35	1	55135	4.74731E-06	20035
36	1	55137	9.16398E-06	20036
37	1	56136	1.16385E-07	20037
38	1	57139	9.05884E-06	20038
39	1	59141	7.95659E-06	20039
40	1	59143	1.19082E-07	20040
41	1	58144	2.29564E-06	20041
42	1	60143	6.78043E-06	20042
43	1	60145	5.11699E-06	20043
44	1	61147	1.49236E-06	20044
45	1	61148	4.52757E-09	20045
46	1	60147	4.25602E-08	20046

47	1	62147	7.28768E-07	200047
48	1	62149	2.99879E-08	200048
49	1	62150	1.95229E-06	200049
50	1	62151	1.52692E-07	200050
51	1	62152	8.95258E-07	200051
52	1	64155	1.19080E-09	200052
53	1	63153	6.19432E-07	200053
54	1	63154	1.60229E-07	200054
55	1	63155	6.98613E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	9.26929E-06	200060
61	1	95237	1.88909E-06	200061
62	1	94238	3.82360E-07	200062
63	1	94239	4.11046E-05	200063
64	1	94240	1.00195E-05	200064
65	1	94241	5.99267E-06	200065
66	1	94242	9.62606E-07	200066
67	1	95241	2.37599E-07	200067
68	1	95243	1.26849E-07	200068
69	1	96244	1.75358E-08	200069
70	1	999	3.30753E-21	200070

Osgometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.29082E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8057 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data***boroni will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	1001	hydrogen	from lag 12 to lag 18	bondarenko	trigger 0
Ocopy	1001	hydrogen	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	1001	hydrogen	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218ngp	from lag 12 to lag 18	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218ngp	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218ngp	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	5011	boron-11	from lag 12 to lag 18	bondarenko	trigger 0
Ocopy	5011	boron-11	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	5011	boron-11	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from lag 12 to lag 18	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	36083	kr-83	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	36085	kr-85	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	39090	sr-90	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	39089	y-89	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	40093	zr-93	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	40094	zr-94	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	40095	zr-95	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	40302	zircaloy	from lag 12 to lag 18	bondarenko	trigger 0
Ocopy	40302	zircaloy	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	40302	zircaloy	from lag 18 to lag 1	bondarenko	trigger 0
Ocopy	41094	rb-94	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	42095	mo-95	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	43099	tc-99	from lag 12 to lag 1	bondarenko	trigger 0
Ocopy	44101	ru-101	from lag 12 to lag 1	bondarenko	trigger 0

Ocopy	44106	ru-106	from log 12 to log 1	bondarenko trigger 0
Ocopy	45103	rh-103	from log 12 to log 1	bondarenko trigger 0
Ocopy	45105	rh-105	from log 12 to log 1	bondarenko trigger 0
Ocopy	46105	pd-105	from log 12 to log 1	bondarenko trigger 0
Ocopy	46108	pd-108	from log 12 to log 1	bondarenko trigger 0
Ocopy	47109	silver-109	from log 12 to log 1	bondarenko trigger 0
Ocopy	51124	sb-124	from log 12 to log 1	bondarenko trigger 0
Ocopy	54131	xe-131	from log 12 to log 1	bondarenko trigger 0
Ocopy	54132	xe-132	from log 12 to log 1	bondarenko trigger 0
Ocopy	54135	xenon-135	from log 12 to log 1	bondarenko trigger 0
Ocopy	54136	xe-136	from log 12 to log 1	bondarenko trigger 0
Ocopy	55133	cesium-133	from log 12 to log 1	bondarenko trigger 0
Ocopy	55134	cs-134	from log 12 to log 1	bondarenko trigger 0
Ocopy	55135	cs-135	from log 12 to log 1	bondarenko trigger 0
Ocopy	55137	cs-137	from log 12 to log 1	bondarenko trigger 0
Ocopy	56136	ba-136	from log 12 to log 1	bondarenko trigger 0
Ocopy	57139	la-139	from log 12 to log 1	bondarenko trigger 0
Ocopy	58144	ce-144	from log 12 to log 1	bondarenko trigger 0
Ocopy	59141	pr-141	from log 12 to log 1	bondarenko trigger 0
Ocopy	59143	pr-143	from log 12 to log 1	bondarenko trigger 0
Ocopy	60143	nd-143	from log 12 to log 1	bondarenko trigger 0
Ocopy	60145	nd-145	from log 12 to log 1	bondarenko trigger 0
Ocopy	60147	nd-147	from log 12 to log 1	bondarenko trigger 0
Ocopy	61147	pm-147	from log 12 to log 1	bondarenko trigger 0
Ocopy	61148	pm-148	from log 12 to log 1	bondarenko trigger 0
Ocopy	62147	sm-147	from log 12 to log 1	bondarenko trigger 0
Ocopy	62149	sm-149	from log 12 to log 1	bondarenko trigger 0
Ocopy	62150	sm-150	from log 12 to log 1	bondarenko trigger 0
Ocopy	62151	sm-151	from log 12 to log 1	bondarenko trigger 0
Ocopy	62152	sm-152	from log 12 to log 1	bondarenko trigger 0
Ocopy	63153	eu-153	from log 12 to log 1	bondarenko trigger 0
Ocopy	63154	eu-154	from log 12 to log 1	bondarenko trigger 0
Ocopy	63155	eu-155	from log 12 to log 1	bondarenko trigger 0
Ocopy	64155	gd-155	from log 12 to log 1	bondarenko trigger 0
Ocopy	92234	u-234 1043 sig=	from log 12 to log 1	bondarenko trigger 0
Ocopy	92235	uranium-235	from log 12 to log 1	bondarenko trigger 0
Ocopy	92236	u-236 1163 sig=	from log 12 to log 1	bondarenko trigger 0
Ocopy	92238	uranium-238	from log 12 to log 1	bondarenko trigger 0
Ocopy	92237	neptunium-237	from log 12 to log 1	bondarenko trigger 0
Ocopy	94238	pu-238 1050 sig=	from log 12 to log 1	bondarenko trigger 0
Ocopy	94239	plutonium-239	from log 12 to log 1	bondarenko trigger 0
Ocopy	94240	plutonium-240	from log 12 to log 1	bondarenko trigger 0
Ocopy	94241	plutonium-241	from log 12 to log 1	bondarenko trigger 0
Ocopy	94242	plutonium-242	from log 12 to log 1	bondarenko trigger 0
Ocopy	95241	am-241 1056 sig=	from log 12 to log 1	bondarenko trigger 0
Ocopy	95243	am-243 1057 218	from log 12 to log 1	bondarenko trigger 0
Ocopy	96244	curium-244	from log 12 to log 1	bondarenko trigger 0

1 scale 4.2 - 27 group neutron burnup library
 based on endf-b version 4 data with endf-b version 5 fission products
 compiled for nrc 1/27/89
 last updated 9/16/93
 l.m.petrie - oml

tape id	4321	number of nuclides	70
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	1

table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev	id	200070
hydrogen endf/b-iv mat 1269/thml002 updated 10/13/89	id	202
hydrogen endf/b-iv mat 1269/thml002 updated 10/13/89	id	200057
b-10 1273 218gp 042375 p-3 293k	id	203

b-10 1273 218np 042375 p-3 293k			id	200058
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	204
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	200059
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	201
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	200010
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	200011
k-85	mt=102,103,105,106,107	updated 10/13/89	id	200012
k-85	mt= 102		id	200013
sr-90	mt=102	updated 10/13/89	id	200014
y-89	mt=102	updated 10/13/89	id	200015
zr-93	mt= 102		id	200017
zr-94	mt=102	updated 10/13/89	id	200018
zr-95	mt=102	updated 10/13/89	id	200019
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	205
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	200056
rb-94	mt=102	updated 10/13/89	id	200020
mo-95	mt=102	updated 10/13/89	id	200016
tc-99	mt=102	updated 10/13/89	id	200021
ru-101	mt=102	updated 10/13/89	id	200024
ru-106	mt=102	updated 10/13/89	id	200025
rh-103	mt=102	updated 10/13/89	id	200022
rh-105	mt= 102		id	200023
pd-105	mt=102	updated 10/13/89	id	200026
pd-108	mt=102	updated 10/13/89	id	200027
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	200028
sb-124	mt=102	updated 10/13/89	id	200029
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	200030
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	200031
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	200032
xe-136	mt= 102, 103, 104, 105, 107		id	200033
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	200060
cs-134	mt=102	updated 10/13/89	id	200034
cs-135	mt= 102		id	200035
cs-137	mt=102	updated 10/13/89	id	200036
ba-136	mt=102	updated 10/13/89	id	200037
la-139	mt=102	updated 10/13/89	id	200038
ce-144	mt= 102		id	200041
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	200039
pr-143	mt=102	updated 10/13/89	id	200040
nd-143	mt=102	updated 10/13/89	id	200042
nd-145	mt=102	updated 10/13/89	id	200043
nd-147	mt=102	updated 10/13/89	id	200046
pm-147	mt=102	updated 10/13/89	id	200044
pm-148	mt= 102		id	200045
sm-147	endf/b-v fission product	updated 10/13/89	id	200047
sm-149	mt=102,103,107	updated 10/13/89	id	200048
sm-150	mt=102	updated 10/13/89	id	200049
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	200050
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	200051
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	200053
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	200054
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	200055
gd-155	mt=102	updated 10/13/89	id	200052
u-234 1043 sigo-5+4 newlacs p-3 293k f-1/e-m(1.+5)			id	200007
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id	200006
u-236 1163 sigo-5+4 newlacs p-3 293k f-1/e-m(1.+5)			id	200008
uranium-238	endf/b-iv mat 1262	updated 10/13/89	id	200009
neptunium-237	endf/b-iv mat 1263	updated 10/13/89	id	200061
pu-238 1050 sigo-5+4 newlacs p-3 293k f-1/e-m(1.+5)			id	200062
plutonium-239	endf/b-iv mat 1264	updated 10/13/89	id	200063

plutonium-240 endf/b-iv mat 1265 updated 10/13/89 id 200064
plutonium-241 endf/b-iv mat 1266 updated 10/13/89 id 200065
plutonium-242 endf/b-iv mat 1161 updated 10/13/89 id 200066
am-241 1056 sigp-5+4 newlacs 218ngp p-3 298k id 200067
am-243 1057 218 gp wt f-1/e-m 090376 p3 298k id 200068
curium-244 endf/b-iv mat 1162 updated 10/13/89 id 200069

```
0 tape copy used 0 i/o's, and took .00 seconds
1 m m iiiiiiiiiii tttttttttt aaaaaaaaaa ww ww ll
  mm m iiiiiiiiiii tttttttttt aaaaaaaaaa ww ww ll
  mmm m ii tt aa aa ww ww ll
  m m m ii tt aa aa ww ww ll
  m m m ii tt aaaaaaaaaa ww w ww ll
  m m m ii tt aaaaaaaaaa ww www ww ll
  m m m ii tt aa aa ww ww ww ww ll
  m m m ii tt aa aa www www ll
  m mm ii tt aa aa ww ww ll
  m m iiiiiiiiiii tttttttttt aa aa www wwwllllllllll
  m m iiiiiiiiiii tttttttttt aa aa ww wwwllllllllll
```

```
0 dddddddddd aaaaaaaaaa w w iiiiiiiiiii ssssssssss
  dddddddddd aaaaaaaaaa w w iiiiiiiiiii ssssssssss
  dd aa aa w w ii ss ss
  dd aa aa w w ii ss
  dd aa aa w w ii ss
  dd aaaaaaaaaa w w ii ssssssssss
  dd aaaaaaaaaa w w ii ssssssssss
  dd aa aa w w ii ss
  dd aa aa w w ii ss
  dd aa aa w w ii ss
  dd aa aa w w ii ss
  dddddddddd aa aa v iiiiiiiiiii ssssssssss
  dddddddddd aa aa v iiiiiiiiiii ssssssssss
```

```
0 00000000 22222222 // 11 66666666 // 99999999 66666666
  00000000 22222222 // 111 66666666 // 99999999 66666666
  00 00 22 22 // 1111 66 66 // 99 99 66
  00 00 22 22 // 11 66 66 // 99 99 66
  00 00 22 22 // 11 66666666 // 99999999 66666666
  00 00 22 22 // 11 66666666 // 99999999 66666666
  00 00 22 22 // 11 66 66 // 99 99 66
  00 00 22 22 // 11 66 66 // 99 99 66
  00000000 22222222 // 11111111 66666666 // 99999999 66666666
  00000000 22222222 // 11111111 66666666 // 99999999 66666666
```

```
0 11 000000 000000 66666666 11 000000
  111 00000000 00000000 66666666 111 00000000
  11 00 00 // 00 00 66 // 11 00 00
  11 00 00 // 00 00 66 // 11 00 00
  11 00 00 // 00 00 66 // 11 00 00
  11 00 00 // 00 00 66666666 // 11 00 00
  11 00 00 // 00 00 66666666 // 11 00 00
  11 00 00 // 00 00 66 66 // 11 00 00
  11 00 00 // 00 00 66 66 // 11 00 00
  11111111 00000000 00000000 66666666 11111111 00000000
```

11111111 000000 000000 666666666 11111111 000000
1
0

SSSSSSSSSS	CCCCCCCCC	AAAAAAA	ll	EEEEEEEEEE
SSSSSSSSSS	CCCCCCCCC	AAAAAAA	ll	EEEEEEEEEE
SS SS	CC CC	aa aa	ll	ee
SS	CC	aa aa	ll	ee
SS	CC	aa aa	ll	ee
SSSSSSSSSS	CC	AAAAAAA	ll	EEEEEEEE
SSSSSSSSSS	CC	AAAAAAA	ll	EEEEEEEE
	SS CC	aa aa	ll	ee
	SS CC	aa aa	ll	ee
SS SS	CC CC	aa aa	ll	ee
SSSSSSSSSS	CCCCCCCCC	aa aa	llllllllll	EEEEEEEEEE
SSSSSSSSSS	CCCCCCCCC	aa aa	llllllllll	EEEEEEEEEE

```
*****
*****
*****
***** program verification information *****
*****
***** code system: scale version: 4.2 *****
*****
*****
*****
***** program: c0c002 *****
*****
***** creation date: 04/27/95 *****
*****
***** library: /neutronics/scale/exe *****
*****
***** this is not a scale configuration controlled code *****
*****
***** jobname: cbvis *****
*****
***** date of execution: 02/16/96 *****
*****
***** time of execution: 10:06:10 *****
*****
*****
*****
*****
```

1
0
0
0
0select 5 nuclides from the master library on logical 1
65 nuclides from the working library on logical 3
0 nuclides from the working library on logical 0
to create the new working library on logical 4

1 resonance calculations have been requested

0 output option for arpx formatted cross section data
 0 the storage allocated for this case is 200000 words
 0 2q array has 70 entries.
 0 3q array has 15 entries.
 0 4q array has 5 entries.
 0 general information concerning cross section library
 tape identification number 4349
 number of nuclides on tape 65
 number of neutron energy groups 27
 first thermal neutron energy group 15
 number of gamma energy groups 0
 0 direct access unit number 9 requires 72 blocks of length 1484 words
 - xsdm tape 4321
 scale 4.2 - 27 group neutron burnup library
 based on endf-b version 4 data with endf-b version 5 fission products
 compiled for nrc 1/27/89
 last updated 9/16/93
 l.m.petrie - oml
 - work tape 4349

xsdm weighted tape--parent case entitled-- 1200 d, sas2h: babcock wilcox 15x15,
 3.00wt%, 20gwd/mtu burn high temp

0 nuclides from xsdm tape				
1	hydrogen	endf/b-iv mat 1269/thm1002	updated 10/13/89	202
2	b-10 1273 218gp 042375 p-3 293k			203
3	boron-11	endf/b-iv mat 1160	updated 10/13/89	204
4	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	201
5	zircalloy	endf/b-iv mat 1284	updated 10/13/89	205
0 nuclides from work tape				
6	1/v cross sections normalized to 1.0 at 0.0253 ev			999
7	hydrogen	endf/b-iv mat 1269/thm1002	updated 10/13/89	1001
8	b-10 1273 218gp 042375 p-3 293k			5010
9	boron-11	endf/b-iv mat 1160	updated 10/13/89	5011
10	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	8016
11	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	6
12	kr-85	mt=102,103,105,106,107	updated 10/13/89	36085
13	kr-85	mt= 102		36085
14	sr-90	mt=102	updated 10/13/89	38090
15	y-89	mt=102	updated 10/13/89	39089
16	zr-93	mt= 102		40093
17	zr-94	mt=102	updated 10/13/89	40094
18	zr-95	mt=102	updated 10/13/89	40095
19	zircalloy	endf/b-iv mat 1284	updated 10/13/89	40802
20	rb-94	mt=102	updated 10/13/89	41094
21	mo-95	mt=102	updated 10/13/89	42095
22	tc-99	mt=102	updated 10/13/89	43099
23	ru-101	mt=102	updated 10/13/89	44101
24	ru-106	mt=102	updated 10/13/89	44106
25	rh-103	mt=102	updated 10/13/89	45103
26	rh-105	mt= 102		45105
27	pd-105	mt=102	updated 10/13/89	46105
28	pd-108	mt=102	updated 10/13/89	46108
29	silver-109	endf/b-iv mat 1139	updated 10/13/89	47109
30	sb-124	mt=102	updated 10/13/89	51124
31	xe-131	mt=102,103,104,105,106	updated 10/13/89	54131
32	xe-132	mt=102,103,104,105,106	updated 10/13/89	54132
33	xenon-135	endf/b-iv mat 1294	updated 10/13/89	54135

34	xe-136	mt= 102, 103, 104, 105, 107		54136
35	cesium-133	endf/b-iv mat 1141	updated 10/13/89	55133
36	cs-134	mt=102	updated 10/13/89	55134
37	cs-135	mt= 102		55135
38	cs-137	mt=102	updated 10/13/89	55137
39	ba-136	mt=102	updated 10/13/89	56136
40	la-139	mt=102	updated 10/13/89	57139
41	ce-144	mt= 102		58144
42	pr-141	mt=102,103,104,105,106,107	updated 10/13/89	59141
43	pr-143	mt=102	updated 10/13/89	59143
44	nd-143	mt=102	updated 10/13/89	60143
45	nd-145	mt=102	updated 10/13/89	60145
46	nd-147	mt=102	updated 10/13/89	60147
47	pm-147	mt=102	updated 10/13/89	61147
48	pm-148	mt= 102		61148
49	sm-147	endf/b-v fission product	updated 10/13/89	62147
50	sm-149	mt=102,103,107	updated 10/13/89	62149
51	sm-150	mt=102	updated 10/13/89	62150
52	sm-151	mt=102,103,104,105,106,107	updated 10/13/89	62151
53	sm-152	mt=102,103,104,105,106,107	updated 10/13/89	62152
54	eu-153	mt=102,103,104,105,106,107	updated 10/13/89	63153
55	eu-154	mt=102,103,104,105,106,107	updated 10/13/89	63154
56	eu-155	mt=102,103,104,105,106,107	updated 10/13/89	63155
57	gd-155	mt=102	updated 10/13/89	64155
58	u-234	1043 sig=5+4 newklacs p-3 293k f-1/e-m(1+.5)		92234
59	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
60	u-236	1163 sig=5+4 newklacs p-3 293k f-1/e-m(1+.5)		92236
61	uranium-238	endf/b-iv mat 1262	updated 10/13/89	92238
62	neptunium-237	endf/b-iv mat 1263	updated 10/13/89	92237
63	pu-238	1050 sig=5+4 newklacs p-3 293k f-1/e-m(1+.5)		94238
64	plutonium-239	endf/b-iv mat 1264	updated 10/13/89	94239
65	plutonium-240	endf/b-iv mat 1265	updated 10/13/89	94240
66	plutonium-241	endf/b-iv mat 1266	updated 10/13/89	94241
67	plutonium-242	endf/b-iv mat 1161	updated 10/13/89	94242
68	am-241	1056 sig=5+4 newklacs 218ngp p-3 293k		95241
69	am-243	1057 218 gp wt f-1/e-m 090376 p3 293k		95243
70	curium-244	endf/b-iv mat 1162	updated 10/13/89	96244
0	hydrogen	endf/b-iv mat 1269/thrmf002	updated 10/13/89	202
		thermal scattering matrix number	2 at a temperature of	550.00 was selected.
				203
0b-10	1273 218ngp 042375 p-3 293k			temperature= 607.60
		thermal scattering matrix number	2 at a temperature of	550.00 was selected.
				204
0	boron-11	endf/b-iv mat 1160	updated 10/13/89	temperature= 607.60
		thermal scattering matrix number	2 at a temperature of	550.00 was selected.
0	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	temperature= 607.60
0	zircalloy	endf/b-iv mat 1284	updated 10/13/89	temperature= 650.00
	Resonance data for this nuclide:			
	Qmass number (a)	= 90.436	temperature(kelvin)	= 650.000
	Qpotential scatter sigma	= 6.385	lumped nuclear density	= 4.2515602E-02
	Qspin factor (g)	= 1.079	lump dimension (a-bar)	= 6.7309999E-01
	Qirmer radius	= 6.3246000E-01	dbcoeff correction (c)	= 1.6805907E-01
	Other absorber will be treated by the nordheim integral method.			
	Other resonance material will be treated as a 2-dimensional object.			
	Qvolume fraction of lump in cell used to account for spatial self-shielding=1.00000			
Qgroup	res abs	res fiss	res scat	
8	-1.156752E-03	.000000E+00	-7.806033E-01	
9	-4.625978E-02	.000000E+00	-2.073270E+00	
10	-5.962230E-02	.000000E+00	-1.351984E+00	
11	-1.761672E-01	.000000E+00	-7.350731E-01	
	Qexcess resonance integrals			
0	resolved			

Absorption 2.92402E-01
 fission .00000E+00
 - elapsed time .00 min.
 - elapsed time .02 min.

1 this xsdm working tape was created 02/16/96 at 10:06:11
 the title of the parent case is as follows
 xsdm weighted tape-parent case entitled- 1200 d, sas2h: beboock wilcox 15x15,
 3.00wt%, 20gd/mtu burn high temp

tape id	8670	number of nuclides	70
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4
table of contents			
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id 202
b-10 1273 218gp	042375 p-3 293k		id 203
boron-11	endf/b-iv mat 1160	updated 10/13/89	id 204
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 201
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id 205
1/v cross sections	normalized to 1.0 at 0.0253 ev		id 999
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id 1001
b-10 1273 218gp	042375 p-3 293k		id 5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id 5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 6
kr-85	mt=102, 103, 105, 106, 107	updated 10/13/89	id 36085
kr-85	mt= 102		id 36085
sr-90	mt=102	updated 10/13/89	id 38090
y-89	mt=102	updated 10/13/89	id 39089
zr-93	mt= 102		id 40093
zr-94	mt=102	updated 10/13/89	id 40094
zr-95	mt=102	updated 10/13/89	id 40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id 40902
rb-94	mt=102	updated 10/13/89	id 41094
mo-95	mt=102	updated 10/13/89	id 42095
tc-99	mt=102	updated 10/13/89	id 43099
ru-101	mt=102	updated 10/13/89	id 44101
ru-106	mt=102	updated 10/13/89	id 44106
rh-103	mt=102	updated 10/13/89	id 45103
rh-105	mt= 102		id 45105
pd-105	mt=102	updated 10/13/89	id 46105
pd-108	mt=102	updated 10/13/89	id 46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id 47109
sb-124	mt=102	updated 10/13/89	id 51124
xe-131	mt=102, 103, 104, 105, 106	updated 10/13/89	id 54131
xe-132	mt=102, 103, 104, 105, 106	updated 10/13/89	id 54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id 54135
xe-136	mt= 102, 103, 104, 105, 107		id 54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id 55133
cs-134	mt=102	updated 10/13/89	id 55134
cs-135	mt= 102		id 55135
cs-137	mt=102	updated 10/13/89	id 55137
ba-136	mt=102	updated 10/13/89	id 56136
la-139	mt=102	updated 10/13/89	id 57139
ce-144	mt= 102		id 58144
pr-141	mt=102, 103, 104, 105, 106, 107	updated 10/13/89	id 59141
pr-143	mt=102	updated 10/13/89	id 59143
nd-143	mt=102	updated 10/13/89	id 60143
nd-145	mt=102	updated 10/13/89	id 60145
nd-147	mt=102	updated 10/13/89	id 60147
pm-147	mt=102	updated 10/13/89	id 61147

```

pm-148          mt= 102          id 61148
sm-147          endf/b-v fission product updated 10/13/89 id 62147
sm-149          mt=102,103,107    updated 10/13/89 id 62149
sm-150          mt=102          updated 10/13/89 id 62150
sm-151          mt=102,103,104,105,106,107 updated 10/13/89 id 62151
sm-152          mt=102,103,104,105,106,107 updated 10/13/89 id 62152
eu-153          mt=102,103,104,105,106,107 updated 10/13/89 id 63153
eu-154          mt=102,103,104,105,106,107 updated 10/13/89 id 63154
eu-155          mt=102,103,104,105,106,107 updated 10/13/89 id 63155
gc-155          mt=102          updated 10/13/89 id 64155
u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5) id 92234
uranium-235     endf/b-iv mat 1261 updated 10/13/89 id 92235
u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5) id 92236
uranium-238     endf/b-iv mat 1262 updated 10/13/89 id 92238
neptunium-237   endf/b-iv mat 1263 updated 10/13/89 id 92237
pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5) id 94238
plutonium-239   endf/b-iv mat 1264 updated 10/13/89 id 94239
plutonium-240   endf/b-iv mat 1265 updated 10/13/89 id 94240
plutonium-241   endf/b-iv mat 1266 updated 10/13/89 id 94241
plutonium-242   endf/b-iv mat 1161 updated 10/13/89 id 94242
am-241 1056 sigo=5+4 newklacs 218gp p-3 293k id 95241
am-243 1057 218 gp wt f-1/e-m 090376 p3 293k id 95243
curium-244      endf/b-iv mat 1162 updated 10/13/89 id 96244
    
```

```

0 tape copy used 0 i/o's, and took .00 seconds
1 xx xx ssssssssss ddttttttttt rrrrrrrrrr m m rrrrrrrrrr mm mm
  xx xx ssssssssss ddttttttttt rrrrrrrrrr m m rrrrrrrrrr mm mm
  xx xx ss ss dd dd r r m m m m pp pp mm mm mm mm
  xx xx ss dd dd r r m m m m pp pp mm mm mm mm
  xxx ssssssssss dd dd rrrrrrrrrr m m m rrrrrrrrrr mm mm
  xxx ssssssssss dd dd rrrrrrrrrr m m m rrrrrrrrrr mm m mm
  xx xx ss dd dd r r m m m m pp pp mm mm
  xx xx ss ss dd dd r r m m m m pp pp mm mm
  xx xx ss ss dd dd r r m m m m pp pp mm mm
  xx xx ssssssssss ddttttttttt r r m m m m pp pp mm mm
  xx xx ssssssssss ddttttttttt r r m m m m pp pp mm mm
    
```

```

0 ddttttttttt aaaaaaaaaa w w iiii iiii ssssssssss
  ddttttttttt aaaaaaaaaa w w iiii iiii ssssssssss
  dd aa aa w w ii ss ss
  dd aa aa w w ii ss ss
  dd aa aaaaaaaaaa w w ii ssssssssss
  dd aa aa w w ii ssssssssss
  dd aa aa w w ii ss ss
  dd aa aa w w ii ss ss
  dd aa aa w w ii ss ss
  ddttttttttt aa aa v iiii iiii ssssssssss
  ddttttttttt aa aa v iiii iiii ssssssssss
    
```

```

0 00000000 22222222 // 11 66666666 // 99999999 66666666
  00 00 22 // 111 66666666 // 99999999 66666666
  00 00 22 // 11 66 66 99 99 66
  00 00 22 // 11 66 66 99 99 66
  00 00 22 // 11 66666666 // 99999999 66666666
  00 00 22 // 11 66666666 // 99999999 66666666
  00 00 22 // 11 66 66 // 99 66 66
    
```

```

00    00    00      22    //          11    66    66      //          99    66    66
00    00    00      22    //          11    66    66      //          99    66    66
00000000  / / / / / / / / / / //    11111111  / / / / / / / / / //    9999999999  / / / / / / / / /
00000000  / / / / / / / / //          11111111  / / / / / / / / //          9999999999  / / / / / / / / /

```

0

```

11    000000  000000  / / / / / / / / /          11    / / / / / / / / /
111   00000000 00000000  / / / / / / / / /          111   / / / / / / / / /
1111  00    00  :::    00    00  66          :::    1111  22    22
11    00    00  :::    00    00  66          :::    11    22    22
11    00    00  :::    00    00  66          :::    11    22    22
11    00    00  :::    00    00  66          :::    11    22    22
11    00    00  :::    00    00  66          :::    11    22    22
11    00    00  :::    00    00  66          :::    11    22    22
11    00    00  :::    00    00  66          :::    11    22    22
11111111 00000000 00000000  / / / / / / / / /          11111111 / / / / / / / / /
11111111 0000000 0000000   / / / / / / / / /          11111111 / / / / / / / / /

```

```

1
0
SSSSSSSSSS  CCCCCCCCCC  AAAAAAAAAA  LL          EEEEEEEEEEEE
SSSSSSSSSS  CCCCCCCCCCCCCC  AAAAAAAAAA  LL          EEEEEEEEEEEE
SS   SS      CC           CC  AA       AA  LL          ee
SS   CC           AA       AA  LL          ee
SS   CC           AA       AA  LL          ee
SSSSSSSSSS  CC           AAAAAAAAAA  LL          EEEEEEEE
SSSSSSSSSS  CC           AAAAAAAAAA  LL          EEEEEEEE
SS   SS      CC           AA       AA  LL          ee
SS   SS      CC           AA       AA  LL          ee
SS   SS      CC           CC  AA       AA  LL          ee
SSSSSSSSSS  CCCCCCCCCCCCCC  AA       AA  LLLLLLLLLLLL EEEEEEEEEEEE
SSSSSSSSSS  CCCCCCCCCC     AA       AA  LLLLLLLLLLLL EEEEEEEEEEEE

```

```

*****
*****
*****
*****           program verification information           *****
*****           code system: scale version: 4.2           *****
*****
*****
*****           program: c0c001                             *****
*****           creation date: 04/27/95                   *****
*****           library: /neutronics/scale/ee             *****
*****
*****           this is not a scale configuration controlled code *****
*****           jobname: davis                             *****
*****           date of execution: 02/16/96                *****
*****

```

 ***** time of execution: 10:06:12 *****


```

1
0        1200 d, second part of sas2h pass to make library
0      -1q array has      1 entries.
0      0q array has     11 entries.
0      1q array has     15 entries.
0      2q array has     10 entries.
0      3q array has     12 entries.
0      4q array has      9 entries.
0      5q array has     12 entries.
0direct access unit 9 requires 12 blocks of length 704 for cross section mixing.
1        1200 d, second part of sas2h pass to make library
0general problem description data block
0      general problem data

ige 1/2/3 = plane/cylinder/sphere 2   isn quadrature order 8
ian number of zones 4   isct order of scattering 3
im number of special intervals 28   ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h 1
ibl 0/1/2/3 = vacuum/refl/per/white 1   im inner iteration maximum 20
ibr right boundary condition 3   ion outer iteration maximum 25
mx number of mixtures 3   iclc -1/0/n--flat res/sr/opt 0
ms mixing table length 70   ith 0/1 = forward/adjoint 0
ign number of energy groups 27   iflu not used(always wgt'd) 0
nrg number of neutron groups 27   iprt -2/-1/0/n=mixture xsec print -2
ngg number of gamma groups 0   idl 0/1/2/3=no/prt nd/pch n/both 14
iftg number of first thermal group 15   ipbt -1/0/1=none/fine/all bal. prt 0
0      special options

ifg 0/1 = none/weighting calculation 1   ipn 0/1/2 diff. coef. param 0
iqn volumetric sources (0/rrn0/yes) 0   idfm 0/1 = none/density factors 38* 0
ipn boundary sources (0/rrn0/yes) 0   iaz 0/n = none/n activities by zone 0
ifn 0/1/2 = input 33*/34*/use last 14   iai 0/1=none/activities by interval 0
itmx maximum time (minutes) 10   ifct 0/1=no/yes upscatter scaling 0
idt1 0/1/2/3=no/xsect/srce/flux--out 0   ipvt 0/1/2=no/k/alpha parametric srch 0
isx broad group fluxes 0   isen outer iteration acceleration 0
ibln activity data unit 0   rndnd band rebaln parameter 0
jbkl 0/1/2 buckling geometry 0
0      weighting data (ifg=1)

icon -1/0/1=cell/zone/region weight -1   ihtf total xsect psn in brd gp tables 3
ignf number of broad groups 3   rndsf psn g-g or file number 4
itp 0/10/20/30/40 0/c/e/ac/a 0   nusf table length or max order 6
jpp -2/-1/0/n=wgt'd xsect print -2   mson extra 1-d x-sect positions 0
iap -1/n anisn xsect print -1

0      floating point parameters

eps overall convergence 1.0000E-04   dy cyl/pla ht for buckling .0000E+00
ptc point convergence 1.0000E-04   dz plane depth for buckling 2.0000E+02
nrf normalization factor 1.0000E+00   vsc void streaming correction .0000E+00
ev eigenvalue guess .0000E+00   pv ipvt=1/2--k/alpha 1.0000E+00
emv eigenvalue modifier .0000E+00   eql ev change eps for search 1.0000E-03
bf buckling factor=1.42089E+00   xrpm new param mod for search 7.5000E-01
this case will require 2611 locations for mixing
this case has been allocated 200000 locations
    
```


1 1200 d, second part of sas2h pass to make library
 0 13q array has 70 entries.
 0 14q array has 70 entries.
 0 15q array has 70 entries.

data block 2 (mixing table, etc.)

nuclides on tape	cccc identification	mixture	component	atom density	extra xsect id's
1	202	3	201	2.09710E-02	
2	208	3	202	4.19420E-02	
3	204	3	203	3.81515E-06	
4	201	3	204	1.54884E-05	
5	205	2	205	4.25154E-02	
6	999	1	92235	1.08667E-04	
7	1001	1	92234	1.35823E-06	
8	5010	1	92236	2.22566E-05	
9	5011	1	92238	7.18805E-03	
10	8016	1	8016	1.50611E-02	
11	6	1	6	1.15315E-02	
12	36083	1	36083	5.99894E-07	
13	36085	1	36085	2.88343E-07	
14	38090	1	38090	6.63490E-06	
15	39089	1	39089	5.44444E-06	
16	40093	1	42095	7.62439E-06	
17	40094	1	40093	5.44388E-06	
18	40095	1	40094	8.64059E-06	
19	40802	1	40095	6.37203E-07	
20	41094	1	41094	4.73664E-12	
21	42095	1	43099	8.45055E-06	
22	43099	1	45108	4.73364E-06	
23	44101	1	45105	8.33256E-09	
24	44106	1	44101	7.83094E-06	
25	45108	1	44106	1.16052E-06	
26	45105	1	46105	3.41731E-06	
27	46105	1	46108	1.04931E-06	
28	46108	1	47109	7.05166E-07	
29	47109	1	51124	1.55244E-10	
30	51124	1	54131	3.79879E-06	
31	54131	1	54132	7.71300E-06	
32	54132	1	54135	2.19622E-09	
33	54135	1	54136	1.49360E-05	
34	54136	1	55134	5.39314E-07	
35	55133	1	55135	4.74731E-06	
36	55134	1	55137	9.16393E-06	
37	55135	1	56136	1.16385E-07	
38	55137	1	57139	9.06884E-06	
39	56136	1	59141	7.95689E-06	
40	57139	1	59143	1.19082E-07	
41	58144	1	58144	2.25564E-06	
42	59141	1	60143	6.78043E-06	
43	59143	1	60145	5.11699E-06	
44	60143	1	61147	1.49234E-06	
45	60145	1	61148	4.52757E-09	
46	60147	1	60147	4.25602E-08	
47	61147	1	62147	7.28763E-07	
48	61148	1	62149	2.99879E-08	
49	62147	1	62150	1.98223E-06	
50	62149	1	62151	1.52692E-07	
51	62150	1	62152	8.95258E-07	
52	62151	1	64155	1.19080E-09	
53	62152	1	63153	6.19432E-07	

54	63153	1	63154	1.60229E-07
55	63154	1	63155	6.98513E-08
56	63155	1	40802	4.42681E-03
57	64155	1	1001	2.30530E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	9.26929E-06
61	92238	1	95237	1.88903E-06
62	95237	1	94238	3.82360E-07
63	94238	1	94239	4.11046E-05
64	94239	1	94240	1.00195E-05
65	94240	1	94241	5.99267E-06
66	94241	1	94242	9.62606E-07
67	94242	1	95241	2.37599E-07
68	95241	1	95243	1.26849E-07
69	95243	1	96244	1.75358E-08
70	96244	1	999	3.30753E-21

- elapsed time .00 min.

0 24259 locations will be used

0 35q array has 29 entries.

0 36q array has 28 entries.

0 39q array has 4 entries.

0 40q array has 4 entries.

0 47q array has 27 entries.

0 51q array has 27 entries.

1 1200 d, second part of sas2h pass to make library

neutron group parameters

gp	energy	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.0000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.0000E+00	
2	6.4340E+06	4.40989E-01	2.88737E+09	1	0	2	1.0000E+00	
3	3.0000E+06	1.20397E+00	2.12201E+09	1	0	3	1.0000E+00	
4	1.8500E+06	1.68740E+00	1.75673E+09	1	0	4	1.0000E+00	
5	1.4000E+06	1.96611E+00	1.46535E+09	1	0	5	1.0000E+00	
6	9.0000E+05	2.40795E+00	1.05620E+09	2	0	6	1.0000E+00	
7	4.0000E+05	3.21888E+00	6.07557E+08	2	0	7	1.0000E+00	
8	1.0000E+05	4.60517E+00	2.72415E+08	2	0	8	1.0000E+00	
9	1.7000E+04	6.37713E+00	1.13526E+08	2	0	9	1.0000E+00	
10	3.0000E+03	8.11173E+00	4.82126E+07	2	0	10	1.0000E+00	
11	5.5000E+02	9.80818E+00	2.05946E+07	2	0	11	1.0000E+00	
12	1.0000E+02	1.15125E+01	1.01036E+07	2	0	12	1.0000E+00	
13	3.0000E+01	1.27169E+01	5.69595E+06	2	0	13	1.0000E+00	
14	1.0000E+01	1.38156E+01	3.20957E+06	2	0	14	1.0000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.0000E+00	
16	1.7700E+00	1.55471E+01	1.70522E+06	2	0	16	1.0000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.0000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.0000E+00	
19	1.0000E+00	1.61181E+01	1.31002E+06	2	0	19	1.0000E+00	
20	8.0000E-01	1.63412E+01	9.05898E+05	2	0	20	1.0000E+00	
21	4.0000E-01	1.70344E+01	8.17974E+05	3	0	21	1.0000E+00	
22	3.2500E-01	1.72420E+01	6.90070E+05	3	0	22	1.0000E+00	
23	2.2500E-01	1.76098E+01	4.85533E+05	3	0	23	1.0000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.0000E+00	
25	5.0000E-02	1.91138E+01	2.71895E+05	3	0	25	1.0000E+00	
26	3.0000E-02	1.96247E+01	1.87233E+05	3	0	26	1.0000E+00	
27	1.0000E-02	2.07233E+01	8.88201E+04	3	0	27	1.0000E+00	
28	1.0000E-05	2.76310E+01						

1 1200 d, second part of sas2h pass to make library

0 mixture order p(l) activity table quadrature constants
by zone by zone matl no. reaction weights directions refl direc wt x cos

1	3	3	0	-2.79004E-01	3	0
2	2	3	5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3	5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3	0	-6.04419E-01	8	0
5			5.59953E-02	-5.58410E-01	8	-3.10450E-02
6			5.59953E-02	-2.31301E-01	7	-1.28593E-02
7			5.59953E-02	2.31301E-01	6	1.28593E-02
8			5.59953E-02	5.58410E-01	5	3.10450E-02
9			0	-8.50774E-01	15	0
10			5.22844E-02	-8.21784E-01	15	-4.29666E-02
11			5.22844E-02	-6.01588E-01	14	-3.14537E-02
12			5.22844E-02	-2.20196E-01	13	-1.15128E-02
13			5.22844E-02	2.20196E-01	12	1.15128E-02
14			5.22844E-02	6.01588E-01	11	3.14537E-02
15			5.22844E-02	8.21784E-01	10	4.29666E-02
16			0	-9.83032E-01	24	0
17			4.53355E-02	-9.64143E-01	24	-4.37099E-02
18			4.53355E-02	-8.17361E-01	23	-3.70555E-02
19			4.53355E-02	-5.46143E-01	22	-2.47597E-02
20			4.53355E-02	-1.91780E-01	21	-8.69444E-03
21			4.53355E-02	1.91780E-01	20	8.69444E-03
22			4.53355E-02	5.46143E-01	19	2.47597E-02
23			4.53355E-02	8.17361E-01	18	3.70555E-02
24			4.53355E-02	9.64143E-01	17	4.37099E-02

Constants for p(3) scattering

Qcrgl	set 1	set 2	set 3	set 4	set 5				
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02				
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02				
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02				
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01				
5	-5.58410E-01	4.52016E-01	2.25714E-01	-7.43201E-01	-6.68028E-02				
6	-2.31301E-01	4.52016E-01	-2.25713E-01	-3.07844E-01	1.61276E-01				
7	2.31301E-01	4.52016E-01	-2.25713E-01	3.07844E-01	-1.61276E-01				
8	5.58410E-01	4.52016E-01	2.25713E-01	7.43201E-01	6.68028E-02				
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01				
10	-8.21784E-01	-8.57235E-02	5.42852E-01	-1.91694E-01	-3.44245E-01				
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44245E-01				
12	-2.20196E-01	-8.57235E-02	-5.42852E-01	-5.13643E-02	3.44245E-01				
13	2.20196E-01	-8.57235E-02	-5.42852E-01	5.13643E-02	-3.44245E-01				
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01				
15	8.21784E-01	-8.57235E-02	5.42852E-01	1.91694E-01	3.44245E-01				
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51003E-01				
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01				
18	-8.17361E-01	-4.49528E-01	3.20252E-01	4.16320E-01	1.46514E-01				
19	-5.46143E-01	-4.49528E-01	-3.20252E-01	2.78176E-01	7.36573E-01				
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01				
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01				
22	5.46143E-01	-4.49528E-01	-3.20252E-01	-2.78176E-01	-7.36573E-01				
23	8.17361E-01	-4.49528E-01	3.20252E-01	2.78176E-01	-7.36573E-01				
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01				
1	int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
		0	1.97844E-02	1	0	4.90881E-03		0	
		2	3.95287E-02	1	2.48366E-01	1.47264E-02		0	
		3	7.90573E-02	1	4.96733E-01	5.89057E-02		0	
		4	1.58115E-01	1	9.93466E-01	9.81762E-02		0	
		5	2.57172E-01	1	1.49020E+00	1.37447E-01			
		6	3.16230E-01	1	1.98693E+00	1.76717E-01			
		7	3.95289E-01	1	2.48366E+00	2.15988E-01			
		8	4.74345E-01	1	2.98040E+00	2.55258E-01			
		9	5.53403E-01	1	3.47713E+00	1.42355E-01			

10	5.92951E-01	6.12696E-01	1	3.7250E+00	1.52173E-01
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02
13	6.73100E-01	6.96883E-01	3	4.22921E+00	2.05562E-01
14	7.20067E-01	7.43550E-01	3	4.52631E+00	2.19422E-01
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01
17	9.11991E-01	9.60886E-01	4	5.72769E+00	5.88891E-01
18	1.00918E+00	1.10577E+00	4	6.34088E+00	1.35731E+00
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00
20	1.39959E+00	1.49714E+00	4	8.79360E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

outer	inner	1 - balance	eigenvalue	1 - source	1 - scatter	1 - upscat	search	time
iter	iters		ratio	ratio	ratio	ratio	parameter	(min)
1	125	8.00497E-06	1.00276E+00	-3.08103E-03	1.00000E+00	-8.34411E-04	.00000E+00	.0000
2	178	-1.07835E-05	1.00317E+00	-4.80255E-05	-2.79825E-04	-2.92346E-04	.00000E+00	.0000
3	219	6.02662E-06	1.00306E+00	-2.19952E-05	-1.05387E-04	-7.97182E-05	.00000E+00	.0000

grp to	grp	inner	mfd	max. flux	mf	max. scale	coarse
		iters	int.	difference	int.	factor	mesh
1	1	1	17	8.28958E-07	28	1.00000E+00	1
2	2	1	17	9.65106E-07	28	1.00000E+00	1
3	3	1	17	8.26446E-07	28	1.00000E+00	1
4	4	1	17	7.39969E-07	28	1.00000E+00	1
5	5	1	17	4.78289E-07	28	1.00000E+00	1
6	6	1	28	1.74231E-07	28	1.00000E+00	1
7	7	1	24	4.55098E-06	28	9.99996E-01	2
8	8	1	28	4.53025E-07	28	1.00000E+00	2
9	9	1	27	1.50841E-05	28	1.00001E+00	3
10	10	1	26	4.82659E-06	28	9.99996E-01	3
11	11	1	26	6.86737E-06	28	9.99995E-01	3
12	12	1	25	4.01992E-06	28	9.99997E-01	3
13	13	1	26	5.41574E-06	28	1.00000E+00	3
14	14	1	28	2.00833E-06	28	9.99999E-01	3
15	15	1	2	7.39044E-05	28	9.99918E-01	2
16	16	1	2	8.80606E-05	28	9.99928E-01	2
17	17	2	26	6.60470E-05	28	1.00007E+00	3
18	18	2	28	3.57894E-05	28	1.00001E+00	3
19	19	2	25	3.91572E-05	28	1.00004E+00	3
20	20	1	2	7.77912E-05	28	9.99861E-01	3
21	21	2	28	3.98852E-05	28	1.00001E+00	3
22	22	1	1	8.78960E-05	28	9.99935E-01	3
23	23	1	1	2.32202E-05	14	9.99990E-01	4
24	24	1	28	3.36975E-05	28	1.00009E+00	4
25	25	1	23	2.30561E-05	28	1.00004E+00	5
26	26	1	28	2.92714E-05	28	1.00001E+00	6
27	27	1	28	2.22264E-05	28	1.00001E+00	8

4	250	-2.66281E-06	1.00318E+00	-7.01149E-06	-2.88134E-05	-1.87275E-05	.00000E+00	.0167
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final monitor

lambda 1.00318E+00 production/absorption 1.01629E+00 angular flux on 16

- elapsed time .02 min.

1 1200 cl, second part of sas2h pass to make library

0	int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	1	3.95287E-02	5.92531E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	1	3.16230E-01	3.55759E-01	1.98493E+00	1.76717E-01	.00000E+00
7	1	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	1	5.53408E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	3	7.20067E-01	7.43550E-01	4.52631E+00	2.19422E-01	.00000E+00
15	3	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.29262E-02
17	4	4	9.11591E-01	9.60386E-01	5.72789E+00	5.88891E-01	2.49412E-02
18	4	4	1.00971E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.62798E-02
19	4	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.48191E-02
20	4	4	1.39956E+00	1.49714E+00	8.79360E+00	1.83603E+00	7.34425E-02
21	4	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.21141E-02
22	4	4	1.78991E+00	1.88750E+00	1.12663E+01	2.31478E+00	9.08379E-02
23	4	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	9.96221E-02
24	4	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.08481E-01
25	4	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.17432E-01
26	4	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.26507E-01
27	4	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	6.67032E-02
28	4	4	2.85341E+00	2.91220E+00	1.79913E+01	1.78571E+00	6.90526E-02
29			2.96100E+00		1.86045E+01		

1200 d, second part of sas2h pass to make library

0	total flux	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
0	int.								
1	1.31613E-02	9.13913E-02	1.12872E-01	6.91366E-02	1.02834E-01	1.92842E-01	1.95131E-01	1.47062E-01	
2	1.31560E-02	9.13397E-02	1.12808E-01	6.90984E-02	1.02784E-01	1.92756E-01	1.95092E-01	1.47057E-01	
3	1.31567E-02	9.13529E-02	1.12829E-01	6.91164E-02	1.02818E-01	1.92825E-01	1.95145E-01	1.47068E-01	
4	1.31636E-02	9.14341E-02	1.12942E-01	6.91948E-02	1.02948E-01	1.93057E-01	1.95301E-01	1.47097E-01	
5	1.31761E-02	9.15770E-02	1.13138E-01	6.92279E-02	1.03164E-01	1.93466E-01	1.95548E-01	1.47140E-01	
6	1.31951E-02	9.17735E-02	1.13408E-01	6.95112E-02	1.03461E-01	1.94014E-01	1.95887E-01	1.47197E-01	
7	1.32146E-02	9.20250E-02	1.13755E-01	6.97493E-02	1.03849E-01	1.94725E-01	1.96327E-01	1.47267E-01	
8	1.32406E-02	9.23391E-02	1.14195E-01	7.00568E-02	1.04354E-01	1.95664E-01	1.96908E-01	1.47350E-01	
9	1.32624E-02	9.26154E-02	1.14590E-01	7.03389E-02	1.04821E-01	1.96531E-01	1.97438E-01	1.47420E-01	
10	1.32774E-02	9.28320E-02	1.14919E-01	7.05872E-02	1.05242E-01	1.97316E-01	1.97944E-01	1.47469E-01	
11	1.32899E-02	9.30158E-02	1.15195E-01	7.07957E-02	1.05596E-01	1.97991E-01	1.98341E-01	1.47513E-01	
12	1.33034E-02	9.31451E-02	1.15369E-01	7.09428E-02	1.05769E-01	1.98328E-01	1.98543E-01	1.47557E-01	
13	1.33319E-02	9.33886E-02	1.15640E-01	7.10417E-02	1.05954E-01	1.98666E-01	1.98734E-01	1.47626E-01	
14	1.33738E-02	9.37765E-02	1.16095E-01	7.12970E-02	1.06328E-01	1.99223E-01	1.99112E-01	1.47718E-01	
15	1.34231E-02	9.42757E-02	1.16721E-01	7.16837E-02	1.06984E-01	2.00394E-01	1.97739E-01	1.47819E-01	
16	1.34997E-02	9.50750E-02	1.17741E-01	7.25290E-02	1.07988E-01	2.02231E-01	1.98829E-01	1.47990E-01	
17	1.35752E-02	9.58701E-02	1.18758E-01	7.29772E-02	1.08967E-01	2.04121E-01	1.99968E-01	1.48187E-01	
18	1.36351E-02	9.66135E-02	1.19592E-01	7.35123E-02	1.09830E-01	2.05753E-01	2.00982E-01	1.48391E-01	
19	1.36872E-02	9.70841E-02	1.20340E-01	7.39999E-02	1.10619E-01	2.07276E-01	2.01946E-01	1.48609E-01	
20	1.37177E-02	9.74264E-02	1.20797E-01	7.42939E-02	1.11112E-01	2.08256E-01	2.02582E-01	1.48758E-01	
21	1.37368E-02	9.76460E-02	1.21095E-01	7.44897E-02	1.11439E-01	2.08925E-01	2.03025E-01	1.48874E-01	
22	1.37489E-02	9.77800E-02	1.21293E-01	7.46208E-02	1.11660E-01	2.09387E-01	2.03338E-01	1.48961E-01	
23	1.37566E-02	9.78808E-02	1.21422E-01	7.47060E-02	1.11806E-01	2.09708E-01	2.03655E-01	1.49029E-01	
24	1.37609E-02	9.78854E-02	1.21500E-01	7.47588E-02	1.11897E-01	2.09908E-01	2.03695E-01	1.49065E-01	
25	1.37628E-02	9.79608E-02	1.21537E-01	7.47832E-02	1.11941E-01	2.10005E-01	2.03768E-01	1.49085E-01	
26	1.37624E-02	9.79707E-02	1.21535E-01	7.47819E-02	1.11940E-01	2.10014E-01	2.03774E-01	1.49086E-01	
27	1.37606E-02	9.79867E-02	1.21508E-01	7.47644E-02	1.11912E-01	2.09999E-01	2.03757E-01	1.49073E-01	

28	1.37580E-02	9.79069E-02	1.21469E-01	7.47380E-02	1.11868E-01	2.09868E-01	2.08674E-01	1.49053E-01
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.16023E-01	1.07284E-01	1.01096E-01	6.55511E-02	5.59238E-02	5.30837E-02	2.88673E-02	1.59289E-02
2	1.16023E-01	1.07286E-01	1.01101E-01	6.55560E-02	5.59287E-02	5.30909E-02	2.88697E-02	1.59300E-02
3	1.16022E-01	1.07277E-01	1.01090E-01	6.55321E-02	5.59059E-02	5.30569E-02	2.88628E-02	1.59260E-02
4	1.16018E-01	1.07256E-01	1.01031E-01	6.54745E-02	5.58511E-02	5.29750E-02	2.88458E-02	1.59162E-02
5	1.16011E-01	1.07224E-01	1.00956E-01	6.53857E-02	5.57678E-02	5.28508E-02	2.88204E-02	1.59014E-02
6	1.16002E-01	1.07180E-01	1.00859E-01	6.52673E-02	5.56551E-02	5.26812E-02	2.87870E-02	1.58818E-02
7	1.15991E-01	1.07122E-01	1.00721E-01	6.51109E-02	5.55081E-02	5.24599E-02	2.87447E-02	1.58566E-02
8	1.15978E-01	1.07044E-01	1.00543E-01	6.49046E-02	5.53155E-02	5.21690E-02	2.86913E-02	1.58242E-02
9	1.15969E-01	1.06971E-01	1.00376E-01	6.47121E-02	5.51366E-02	5.18980E-02	2.86432E-02	1.57946E-02
10	1.15970E-01	1.06902E-01	1.00221E-01	6.45370E-02	5.49747E-02	5.16517E-02	2.86012E-02	1.57680E-02
11	1.15970E-01	1.06848E-01	1.00099E-01	6.43995E-02	5.48163E-02	5.14575E-02	2.85646E-02	1.57439E-02
12	1.15971E-01	1.06829E-01	1.00054E-01	6.43499E-02	5.47937E-02	5.13798E-02	2.85446E-02	1.57355E-02
13	1.15927E-01	1.06808E-01	9.99914E-02	6.42653E-02	5.47180E-02	5.12637E-02	2.85273E-02	1.57241E-02
14	1.15857E-01	1.06741E-01	9.99494E-02	6.40849E-02	5.45579E-02	5.10150E-02	2.84984E-02	1.57022E-02
15	1.15783E-01	1.06638E-01	9.96166E-02	6.38038E-02	5.43076E-02	5.06243E-02	2.84548E-02	1.56680E-02
16	1.15680E-01	1.06468E-01	9.92308E-02	6.33408E-02	5.38937E-02	4.99760E-02	2.83756E-02	1.56097E-02
17	1.15587E-01	1.06301E-01	9.88452E-02	6.28799E-02	5.34745E-02	4.93243E-02	2.82820E-02	1.55471E-02
18	1.15521E-01	1.06159E-01	9.85156E-02	6.24828E-02	5.31081E-02	4.87672E-02	2.81823E-02	1.54867E-02
19	1.15470E-01	1.06028E-01	9.82080E-02	6.21150E-02	5.27616E-02	4.82481E-02	2.80772E-02	1.54258E-02
20	1.15446E-01	1.05945E-01	9.80093E-02	6.18776E-02	5.25333E-02	4.79124E-02	2.79984E-02	1.53821E-02
21	1.15434E-01	1.05889E-01	9.78711E-02	6.17126E-02	5.23724E-02	4.76786E-02	2.79387E-02	1.53498E-02
22	1.15429E-01	1.05849E-01	9.77727E-02	6.15952E-02	5.22568E-02	4.75119E-02	2.78933E-02	1.53266E-02
23	1.15420E-01	1.05821E-01	9.77029E-02	6.15118E-02	5.21736E-02	4.73933E-02	2.78599E-02	1.53079E-02
24	1.15424E-01	1.05802E-01	9.76653E-02	6.14550E-02	5.21171E-02	4.73126E-02	2.78307E-02	1.52959E-02
25	1.15421E-01	1.05791E-01	9.76269E-02	6.14211E-02	5.20886E-02	4.72646E-02	2.78242E-02	1.52891E-02
26	1.15419E-01	1.05787E-01	9.76178E-02	6.14101E-02	5.20737E-02	4.72497E-02	2.78221E-02	1.52879E-02
27	1.15416E-01	1.05789E-01	9.76290E-02	6.14168E-02	5.20817E-02	4.72599E-02	2.78278E-02	1.52907E-02
28	1.15416E-01	1.05794E-01	9.76384E-02	6.14353E-02	5.21013E-02	4.72870E-02	2.78381E-02	1.52960E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	6.88699E-03	5.06897E-03	1.05301E-02	3.45414E-02	1.05307E-02	2.16097E-02	7.33210E-02	6.08480E-02
2	6.88723E-03	5.07066E-03	1.05316E-02	3.45569E-02	1.05319E-02	2.16116E-02	7.33162E-02	6.08340E-02
3	6.88500E-03	5.06135E-03	1.05247E-02	3.45419E-02	1.05204E-02	2.15755E-02	7.32009E-02	6.02128E-02
4	6.87450E-03	5.03893E-03	1.05081E-02	3.45066E-02	1.05040E-02	2.14934E-02	7.29474E-02	5.99522E-02
5	6.86078E-03	5.00445E-03	1.02830E-02	3.44536E-02	1.05541E-02	2.13700E-02	7.25713E-02	5.95665E-02
6	6.84211E-03	4.95744E-03	1.02490E-02	3.43829E-02	1.05001E-02	2.12032E-02	7.20703E-02	5.90530E-02
7	6.81767E-03	4.89439E-03	1.02048E-02	3.42920E-02	1.04296E-02	2.09858E-02	7.14319E-02	5.84006E-02
8	6.78545E-03	4.81055E-03	1.01471E-02	3.41752E-02	1.03369E-02	2.07018E-02	7.06250E-02	5.75820E-02
9	6.75345E-03	4.73147E-03	1.00937E-02	3.40683E-02	1.02505E-02	2.04385E-02	6.98993E-02	5.68518E-02
10	6.72789E-03	4.65878E-03	1.00454E-02	3.39730E-02	1.01716E-02	2.02004E-02	6.92682E-02	5.62500E-02
11	6.70622E-03	4.60319E-03	1.00068E-02	3.38962E-02	1.01111E-02	2.00211E-02	6.88086E-02	5.57884E-02
12	6.69766E-03	4.58349E-03	9.99090E-03	3.38630E-02	1.00899E-02	1.99612E-02	6.86664E-02	5.56771E-02
13	6.68479E-03	4.54684E-03	9.96951E-03	3.38215E-02	1.00551E-02	1.98511E-02	6.83980E-02	5.54012E-02
14	6.65693E-03	4.46438E-03	9.92434E-03	3.37378E-02	9.97584E-03	1.96015E-02	6.77860E-02	5.47732E-02
15	6.61282E-03	4.33888E-03	9.85351E-03	3.36089E-02	9.85020E-03	1.92128E-02	6.68990E-02	5.38971E-02
16	6.54006E-03	4.09981E-03	9.73561E-03	3.33954E-02	9.64370E-03	1.85685E-02	6.55310E-02	5.25478E-02
17	6.46577E-03	3.86727E-03	9.61391E-03	3.31691E-02	9.43901E-03	1.79298E-02	6.41383E-02	5.12188E-02
18	6.40607E-03	3.69618E-03	9.50407E-03	3.29520E-02	9.26664E-03	1.74007E-02	6.28091E-02	4.99993E-02
19	6.34892E-03	3.55276E-03	9.39875E-03	3.27340E-02	9.10672E-03	1.69161E-02	6.14735E-02	4.88489E-02
20	6.31196E-03	3.47233E-03	9.32831E-03	3.25802E-02	9.00357E-03	1.66076E-02	6.05225E-02	4.77222E-02
21	6.28619E-03	3.42148E-03	9.27833E-03	3.24664E-02	8.93143E-03	1.63933E-02	5.98103E-02	4.70277E-02
22	6.26779E-03	3.38796E-03	9.24220E-03	3.23814E-02	8.87965E-03	1.62401E-02	5.92713E-02	4.65018E-02
23	6.25469E-03	3.36541E-03	9.21629E-03	3.23190E-02	8.84243E-03	1.61300E-02	5.88669E-02	4.61070E-02
24	6.24579E-03	3.35033E-03	9.19846E-03	3.22757E-02	8.81670E-03	1.60533E-02	5.85748E-02	4.58208E-02
25	6.24053E-03	3.34139E-03	9.18778E-03	3.22499E-02	8.80062E-03	1.60045E-02	5.83821E-02	4.56277E-02
26	6.23895E-03	3.33737E-03	9.18461E-03	3.22411E-02	8.79414E-03	1.59823E-02	5.82878E-02	4.55247E-02
27	6.24049E-03	3.33747E-03	9.18570E-03	3.22474E-02	8.79538E-03	1.59825E-02	5.82784E-02	4.55016E-02
28	6.24360E-03	3.34058E-03	9.19248E-03	3.22625E-02	8.80196E-03	1.59983E-02	5.83274E-02	4.55341E-02
0 int.	grp. 25	grp. 26	grp. 27					

1	2.7335E-02	1.9734E-02	3.7489E-03
2	2.7325E-02	1.9723E-02	3.7459E-03
3	2.7280E-02	1.9669E-02	3.7343E-03
4	2.7125E-02	1.9547E-02	3.7098E-03
5	2.6920E-02	1.9370E-02	3.6727E-03
6	2.6649E-02	1.9131E-02	3.6219E-03
7	2.6305E-02	1.8825E-02	3.5558E-03
8	2.5875E-02	1.8440E-02	3.4700E-03
9	2.5494E-02	1.8097E-02	3.3928E-03
10	2.5172E-02	1.7804E-02	3.3266E-03
11	2.4856E-02	1.7616E-02	3.2853E-03
12	2.4910E-02	1.7587E-02	3.2839E-03
13	2.4757E-02	1.7447E-02	3.2460E-03
14	2.4408E-02	1.7114E-02	3.1551E-03
15	2.3923E-02	1.6643E-02	3.0202E-03
16	2.3225E-02	1.5975E-02	2.8237E-03
17	2.2535E-02	1.5342E-02	2.6544E-03
18	2.1878E-02	1.4782E-02	2.5280E-03
19	2.1215E-02	1.4209E-02	2.4095E-03
20	2.0746E-02	1.3830E-02	2.3381E-03
21	2.0397E-02	1.3583E-02	2.2899E-03
22	2.0136E-02	1.3360E-02	2.2561E-03
23	1.9941E-02	1.3216E-02	2.2527E-03
24	1.9800E-02	1.3113E-02	2.2161E-03
25	1.9705E-02	1.3045E-02	2.2051E-03
26	1.9651E-02	1.3005E-02	2.1987E-03
27	1.9636E-02	1.2993E-02	2.1963E-03
28	1.9646E-02	1.2993E-02	2.1962E-03

- elapsed time .02 min.

1 fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	5.1263E-04	6.7851E-04	5.6497E-05	-7.3497E-04	9.99950E-01
2	.0000E+00	.0000E+00	3.8931E-04	6.2041E-03	8.1542E-03	1.7729E-04	-7.9419E-03	9.99961E-01
3	.0000E+00	.0000E+00	3.8739E-03	5.4824E-03	1.4264E-02	9.3081E-05	-1.0483E-02	9.99977E-01
4	.0000E+00	.0000E+00	5.6119E-03	3.6075E-03	1.2952E-02	4.2099E-05	-6.8251E-03	9.99987E-01
5	.0000E+00	.0000E+00	1.0298E-02	1.1540E-02	2.0907E-02	4.9731E-05	-1.0658E-02	9.99990E-01
6	.0000E+00	.0000E+00	2.1549E-02	3.4512E-02	4.1018E-02	8.4328E-05	-1.9553E-02	9.99998E-01
7	.0000E+00	.0000E+00	4.2275E-02	6.0995E-02	5.4155E-02	6.1242E-05	-1.1939E-02	9.99990E-01
8	.0000E+00	.0000E+00	5.6987E-02	7.8945E-02	5.8781E-02	3.6425E-05	-2.4253E-03	9.99912E-01
9	.0000E+00	.0000E+00	5.7820E-02	7.2683E-02	5.7592E-02	2.9305E-05	2.3982E-04	9.99885E-01
10	.0000E+00	.0000E+00	5.7133E-02	6.9280E-02	5.5678E-02	3.6119E-05	1.4263E-03	9.99896E-01
11	.0000E+00	.0000E+00	5.9952E-02	6.5743E-02	5.2486E-02	5.5282E-05	3.4139E-03	9.99940E-01
12	.0000E+00	.0000E+00	4.5604E-02	3.5172E-02	4.1394E-02	6.0581E-05	4.0597E-03	9.99978E-01
13	.0000E+00	.0000E+00	4.0606E-02	2.8993E-02	3.6668E-02	8.4704E-05	3.8974E-03	9.99969E-01
14	.0000E+00	.0000E+00	3.9517E-02	2.8091E-02	3.3557E-02	1.3556E-04	5.8249E-03	9.99988E-01
15	.0000E+00	.0000E+00	2.1625E-02	1.0791E-02	2.0216E-02	1.1196E-04	1.2948E-03	9.99998E-01
16	.0000E+00	.0000E+00	1.4166E-02	4.5318E-03	1.3351E-02	7.5576E-05	7.3968E-04	1.00000E+00
17	.0000E+00	.0000E+00	7.2527E-03	1.2624E-03	6.5686E-03	3.6140E-05	6.5062E-04	9.99980E-01
18	.0000E+00	.0000E+00	6.4129E-03	8.8070E-04	4.8123E-03	2.7557E-05	1.5725E-03	9.99994E-01
19	.0000E+00	.0000E+00	1.0537E-02	2.8029E-03	9.3028E-03	6.2778E-05	1.1716E-03	9.99986E-01
20	.0000E+00	.0000E+00	2.5690E-02	2.0302E-02	2.2954E-02	2.6478E-04	2.4712E-03	1.00001E+00
21	.0000E+00	.0000E+00	1.2198E-02	3.9884E-03	1.0375E-02	1.0002E-04	1.7227E-03	9.99981E-01
22	.0000E+00	.0000E+00	2.4012E-02	1.2067E-02	1.8796E-02	2.3178E-04	5.0015E-03	9.99991E-01
23	.0000E+00	.0000E+00	6.1825E-02	7.4086E-02	4.8505E-02	1.0754E-03	1.2100E-02	9.99992E-01
24	.0000E+00	.0000E+00	6.5848E-02	7.0337E-02	5.4291E-02	1.2795E-03	1.0279E-02	9.99992E-01
25	.0000E+00	.0000E+00	4.3889E-02	2.9890E-02	3.8465E-02	7.5990E-04	4.6646E-03	9.99994E-01
26	.0000E+00	.0000E+00	3.5084E-02	3.3458E-02	3.0903E-02	7.7374E-04	3.4073E-03	9.99994E-01
27	.0000E+00	.0000E+00	1.1914E-02	7.2633E-03	1.1065E-02	2.7647E-04	5.7301E-04	9.99999E-01
28	.0000E+00	.0000E+00	7.7742E-01	7.7478E-01	7.7742E-01	6.0780E-03	-6.0502E-03	9.99986E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*cb**2	total flux

1	1.32845E-02	-7.34974E-04	1.31657E-02	.00000E+00	3.75257E-11	.00000E+00	2.05355E-05	1.66106E-02
2	9.29464E-02	-7.94192E-03	9.14349E-02	.00000E+00	.00000E+00	.00000E+00	8.99265E-05	1.15714E-01
3	1.15100E-01	-1.04830E-02	1.12928E-01	.00000E+00	.00000E+00	.00000E+00	9.26504E-05	1.43060E-01
4	7.07274E-02	-6.82516E-03	6.91706E-02	.00000E+00	.00000E+00	.00000E+00	4.18456E-05	8.77364E-02
5	1.05483E-01	-1.06589E-02	1.02885E-01	.00000E+00	.00000E+00	.00000E+00	4.94384E-05	1.30646E-01
6	1.97766E-01	-1.95534E-02	1.92925E-01	.00000E+00	.00000E+00	.00000E+00	8.34586E-05	2.44682E-01
7	1.96203E-01	-1.19991E-02	1.95174E-01	.00000E+00	.00000E+00	.00000E+00	5.92983E-05	2.44371E-01
8	1.47493E-01	-2.42535E-03	1.47059E-01	.00000E+00	.00000E+00	.00000E+00	3.27431E-05	1.85075E-01
9	1.15973E-01	2.39825E-04	1.16022E-01	.00000E+00	.00000E+00	.00000E+00	2.16949E-05	1.45761E-01
10	1.06863E-01	1.42638E-03	1.07281E-01	.00000E+00	.00000E+00	.00000E+00	1.91913E-05	1.34590E-01
11	1.00132E-01	3.41398E-03	1.01089E-01	.00000E+00	.00000E+00	.00000E+00	1.79485E-05	1.26516E-01
12	6.44365E-02	4.05977E-03	6.55422E-02	.00000E+00	.00000E+00	.00000E+00	1.05351E-05	8.17599E-02
13	5.48821E-02	3.89740E-03	5.59150E-02	.00000E+00	.00000E+00	.00000E+00	8.75239E-06	6.96983E-02
14	5.15106E-02	5.82491E-03	5.30708E-02	.00000E+00	.00000E+00	.00000E+00	8.43566E-06	6.58576E-02
15	2.85786E-02	1.29488E-03	2.88649E-02	.00000E+00	.00000E+00	.00000E+00	4.44573E-06	3.61095E-02
16	1.57533E-02	7.39589E-04	1.59275E-02	.00000E+00	.00000E+00	.00000E+00	2.21778E-06	1.99177E-02
17	6.71189E-03	6.50524E-04	6.89469E-03	.00000E+00	.00000E+00	.00000E+00	8.75904E-07	8.55776E-03
18	4.61483E-03	1.57250E-03	5.06558E-03	.00000E+00	.00000E+00	.00000E+00	6.11462E-07	6.12381E-03
19	1.00173E-02	1.17162E-03	1.05272E-02	.00000E+00	.00000E+00	.00000E+00	1.34008E-06	1.28073E-02
20	3.39204E-02	2.47121E-03	3.45504E-02	.00000E+00	.00000E+00	.00000E+00	5.04726E-06	4.30622E-02
21	1.01259E-02	1.72275E-03	1.06271E-02	.00000E+00	.00000E+00	.00000E+00	1.19923E-06	1.30789E-02
22	2.00543E-02	5.00151E-03	2.16013E-02	.00000E+00	.00000E+00	.00000E+00	2.40339E-06	2.62900E-02
23	6.89102E-02	1.21000E-02	7.33008E-02	.00000E+00	.00000E+00	.00000E+00	7.38782E-06	8.95713E-02
24	5.58694E-02	1.02794E-02	6.05340E-02	.00000E+00	.00000E+00	.00000E+00	4.48697E-06	7.32015E-02
25	2.49909E-02	4.66466E-03	2.73313E-02	.00000E+00	.00000E+00	.00000E+00	1.56083E-06	3.29612E-02
26	1.76401E-02	3.40732E-03	1.97334E-02	.00000E+00	.00000E+00	.00000E+00	8.26149E-07	2.35667E-02
27	3.28934E-03	5.73019E-04	3.74895E-03	.00000E+00	.00000E+00	.00000E+00	9.71280E-08	4.44555E-03
28	1.73329E+00	-6.05016E-03	1.73997E+00	.00000E+00	3.75257E-11	.00000E+00	5.88752E-04	2.18205E+00

1 fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.26681E-04	1.69926E-04	2.54975E-05	-1.66415E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.95772E-05	1.47025E-03	1.05497E-03	1.41607E-05	-1.03947E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.52059E-04	2.77987E-03	8.78965E-04	2.03420E-05	-7.47189E-04	9.99999E-01
4	.00000E+00	.00000E+00	2.89087E-04	2.31001E-03	2.99096E-04	1.31270E-05	-2.31168E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.21348E-04	4.42235E-03	2.79680E-04	1.68860E-05	3.24773E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02825E-03	1.24105E-02	1.69562E-04	2.70798E-05	8.31595E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.75439E-04	1.25992E-02	6.33305E-05	2.68257E-05	5.85293E-04	9.99999E-01
8	.00000E+00	.00000E+00	1.17754E-04	9.21348E-03	4.43644E-04	2.21254E-05	-3.48044E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45495E-04	6.34585E-03	5.30664E-05	7.67849E-05	3.15699E-04	9.99978E-01
10	.00000E+00	.00000E+00	5.31318E-05	4.99632E-03	4.95722E-05	5.94391E-05	-5.58849E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95755E-05	4.46568E-03	5.04333E-05	9.02401E-05	-9.10966E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.04336E-05	2.76787E-03	5.14952E-05	5.68857E-05	-6.75488E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.14953E-05	2.35816E-03	4.81048E-05	6.31862E-05	-2.92598E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.81048E-05	2.21739E-03	4.17867E-05	8.46807E-05	-2.14998E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.43495E-05	1.20592E-03	4.99544E-05	6.26518E-05	-1.11693E-05	9.99940E-01
16	.00000E+00	.00000E+00	5.51789E-05	6.36471E-04	5.51385E-05	3.77227E-05	-3.68326E-06	9.99939E-01
17	.00000E+00	.00000E+00	5.95582E-05	2.36301E-04	5.81661E-05	1.75654E-05	-3.61819E-05	9.99999E-01
18	.00000E+00	.00000E+00	6.09980E-05	1.52556E-04	4.92598E-05	1.27010E-05	1.04690E-05	9.99999E-01
19	.00000E+00	.00000E+00	5.13033E-05	3.82839E-04	5.64845E-05	2.97074E-05	-8.14872E-06	9.99997E-01
20	.00000E+00	.00000E+00	6.88780E-05	1.42789E-03	6.07046E-05	1.22760E-05	-3.99747E-06	9.99995E-01
21	.00000E+00	.00000E+00	7.98444E-05	3.58223E-04	8.55664E-05	4.44045E-05	-1.07377E-05	9.99997E-01
22	.00000E+00	.00000E+00	1.12663E-04	7.74799E-04	1.03549E-04	1.00041E-05	-8.30274E-07	9.99988E-01
23	.00000E+00	.00000E+00	1.60871E-04	2.81343E-03	2.06553E-04	4.59520E-05	-9.16002E-05	9.99997E-01
24	.00000E+00	.00000E+00	2.66929E-04	2.15347E-03	2.95311E-04	5.28600E-05	-8.14330E-05	9.99997E-01
25	.00000E+00	.00000E+00	2.78833E-04	8.71228E-04	2.24243E-04	3.08316E-05	1.87564E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.16681E-04	6.83095E-04	9.02729E-05	3.06656E-05	-4.25638E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.61757E-05	1.44269E-04	7.43328E-03	1.07056E-05	1.53984E-05	9.99999E-01
28	.00000E+00	.00000E+00	4.98653E-03	8.04442E-02	4.98653E-03	6.05781E-04	-5.97326E-04	9.99971E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2h rate	fiss rate	flux*cb**2	total flux
1	1.33116E-02	-9.01389E-04	1.32845E-02	-7.34974E-04	6.07129E-06	.00000E+00	1.67885E-06	2.21639E+00

2	9.32136E-02	-8.98139E-03	9.29464E-02	-7.94192E-03	.0000E+00	.0000E+00	1.12400E-05	1.55151E-02
3	1.15448E-01	-1.12302E-02	1.15100E-01	-1.04830E-02	.0000E+00	.0000E+00	1.27388E-05	1.92162E-02
4	7.09442E-02	-6.84828E-03	7.07274E-02	-6.82516E-03	.0000E+00	.0000E+00	7.45623E-06	1.18099E-02
5	1.05821E-01	-1.03341E-02	1.05483E-01	-1.06589E-02	.0000E+00	.0000E+00	8.64728E-06	1.76158E-02
6	1.98438E-01	-1.87218E-02	1.97766E-01	-1.95534E-02	.0000E+00	.0000E+00	1.01802E-05	3.30310E-02
7	1.96608E-01	-1.13538E-02	1.96203E-01	-1.19991E-02	.0000E+00	.0000E+00	8.35682E-06	3.27445E-02
8	1.47581E-01	-2.77340E-03	1.47492E-01	-2.42535E-03	.0000E+00	.0000E+00	5.27783E-06	2.45922E-02
9	1.15964E-01	5.55484E-04	1.15973E-01	2.39825E-04	.0000E+00	.0000E+00	4.58828E-06	1.93313E-02
10	1.06824E-01	1.37050E-03	1.06863E-01	1.42638E-03	.0000E+00	.0000E+00	4.91853E-06	1.78065E-02
11	1.00041E-01	3.32288E-03	1.00132E-01	3.41398E-03	.0000E+00	.0000E+00	4.77610E-06	1.66813E-02
12	6.43292E-02	4.05302E-03	6.44366E-02	4.08977E-03	.0000E+00	.0000E+00	3.22225E-06	1.07300E-02
13	5.47769E-02	3.89447E-03	5.48821E-02	3.89740E-03	.0000E+00	.0000E+00	2.73826E-06	9.13769E-03
14	5.13553E-02	5.82276E-03	5.15106E-02	5.82491E-03	.0000E+00	.0000E+00	2.56199E-06	8.57069E-03
15	2.85380E-02	1.28371E-03	2.85785E-02	1.29488E-03	.0000E+00	.0000E+00	1.40234E-06	4.7594E-03
16	1.57324E-02	7.36006E-04	1.57533E-02	7.39689E-04	.0000E+00	.0000E+00	7.73072E-07	2.62575E-03
17	6.89474E-03	6.50262E-04	6.71186E-03	6.50624E-04	.0000E+00	.0000E+00	3.28992E-07	1.11711E-03
18	4.57743E-03	1.58297E-03	4.61683E-03	1.57250E-03	.0000E+00	.0000E+00	2.25407E-07	7.65622E-04
19	9.9857E-03	1.16348E-03	1.00173E-02	1.17162E-03	.0000E+00	.0000E+00	4.90463E-07	1.66665E-03
20	3.38541E-02	2.46722E-03	3.39206E-02	2.47121E-03	.0000E+00	.0000E+00	1.69594E-06	5.64723E-03
21	1.00836E-02	1.71201E-03	1.01259E-02	1.72275E-03	.0000E+00	.0000E+00	4.99584E-07	1.68899E-03
22	1.99449E-02	5.0068E-03	2.00643E-02	5.00151E-03	.0000E+00	.0000E+00	9.76332E-07	3.33217E-03
23	6.86258E-02	1.20084E-02	6.89102E-02	1.2100E-02	.0000E+00	.0000E+00	3.34519E-06	1.14574E-02
24	5.56471E-02	1.01981E-02	5.58996E-02	1.02796E-02	.0000E+00	.0000E+00	2.69583E-06	9.28975E-03
25	2.48983E-02	4.68341E-03	2.49909E-02	4.66466E-03	.0000E+00	.0000E+00	1.19888E-06	4.15599E-03
26	1.75830E-02	3.40807E-03	1.76401E-02	3.40732E-03	.0000E+00	.0000E+00	8.37464E-07	2.93401E-03
27	3.28993E-03	5.88417E-04	3.28994E-03	5.73019E-04	.0000E+00	.0000E+00	1.51513E-07	5.47592E-04
28	1.73410E+00	-6.64754E-03	1.73329E+00	-6.05016E-03	6.07129E-06	.0000E+00	1.02960E-04	2.88818E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.0000E+00	.0000E+00	.0000E+00	2.71782E-04	3.59727E-04	2.99531E-05	-3.89661E-04	9.99985E-01
2	.0000E+00	.0000E+00	2.05404E-04	3.31172E-03	4.35264E-03	9.46367E-05	-4.24070E-03	9.99987E-01
3	.0000E+00	.0000E+00	2.05748E-03	2.95067E-03	7.62504E-03	4.97579E-05	-5.60713E-03	9.99990E-01
4	.0000E+00	.0000E+00	2.99899E-03	1.93131E-03	6.6980E-03	2.25388E-05	-3.6957E-03	9.99994E-01
5	.0000E+00	.0000E+00	5.50818E-03	6.18790E-03	1.12104E-02	2.66669E-05	-5.72899E-03	9.99995E-01
6	.0000E+00	.0000E+00	1.15427E-02	1.8505E-02	2.19879E-02	4.52042E-05	-1.04904E-02	9.99999E-01
7	.0000E+00	.0000E+00	2.26572E-02	3.24014E-02	2.87701E-02	3.25350E-05	-6.14510E-03	9.99992E-01
8	.0000E+00	.0000E+00	3.00076E-02	4.11900E-02	3.08851E-02	1.91385E-05	-8.99900E-04	9.99979E-01
9	.0000E+00	.0000E+00	3.04426E-02	3.80277E-02	3.01144E-02	1.53321E-05	3.16313E-04	9.99888E-01
10	.0000E+00	.0000E+00	2.99251E-02	3.61624E-02	2.90619E-02	1.88534E-05	8.47524E-04	9.99900E-01
11	.0000E+00	.0000E+00	2.92245E-02	3.41418E-02	2.72575E-02	2.87098E-05	1.94002E-03	9.99946E-01
12	.0000E+00	.0000E+00	2.36570E-02	1.81352E-02	2.13383E-02	3.12362E-05	2.28797E-03	9.99982E-01
13	.0000E+00	.0000E+00	2.10148E-02	1.47232E-02	1.88815E-02	4.36148E-05	2.09037E-03	9.99974E-01
14	.0000E+00	.0000E+00	2.05764E-02	1.43112E-02	1.70958E-02	6.90660E-05	3.21178E-03	9.99991E-01
15	.0000E+00	.0000E+00	1.10610E-02	5.60497E-03	1.05004E-02	5.81558E-05	5.02442E-04	1.00000E+00
16	.0000E+00	.0000E+00	7.25684E-03	2.35101E-03	6.98629E-03	3.92071E-05	3.31318E-04	1.00000E+00
17	.0000E+00	.0000E+00	3.74089E-03	6.45785E-04	3.39999E-03	1.84864E-05	3.62486E-04	9.99989E-01
18	.0000E+00	.0000E+00	3.30274E-03	4.20702E-04	2.29880E-03	1.31639E-05	9.90793E-04	9.99997E-01
19	.0000E+00	.0000E+00	5.37951E-03	1.42818E-03	4.74001E-03	3.19870E-05	6.07600E-04	9.99983E-01
20	.0000E+00	.0000E+00	1.31138E-02	1.04643E-02	1.18313E-02	1.36477E-04	1.14592E-03	1.00001E+00
21	.0000E+00	.0000E+00	6.21557E-03	1.99899E-03	5.19927E-03	5.01215E-05	9.66288E-04	9.99986E-01
22	.0000E+00	.0000E+00	1.21350E-02	5.90458E-03	9.18880E-03	1.13411E-04	2.83278E-03	9.99998E-01
23	.0000E+00	.0000E+00	3.05736E-02	3.68392E-02	2.41913E-02	5.34776E-04	5.84755E-03	1.00000E+00
24	.0000E+00	.0000E+00	3.23459E-02	3.45699E-02	2.66817E-02	6.28868E-04	5.08530E-03	9.99992E-01
25	.0000E+00	.0000E+00	2.14304E-02	1.45370E-02	1.87019E-02	3.69468E-04	2.39918E-03	9.99998E-01
26	.0000E+00	.0000E+00	1.70620E-02	1.59857E-02	1.47187E-02	3.68539E-04	1.97664E-03	1.00000E+00
27	.0000E+00	.0000E+00	5.76661E-03	3.37250E-03	5.1376E-03	1.28370E-04	5.00587E-04	1.00000E+00
28	.0000E+00	.0000E+00	3.99052E-01	3.96295E-01	3.99052E-01	3.01826E-05	-3.00434E-03	9.99966E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rft rate	fiss rate	flux*rt**2	total flux
1	1.34508E-02	-1.29105E-03	1.33116E-02	-9.01389E-04	1.98999E-11	.0000E+00	1.07812E-05	8.80539E-03
2	9.46628E-02	-1.32221E-02	9.32136E-02	-8.98139E-03	.0000E+00	.0000E+00	4.80016E-05	6.17666E-02

3	1.1708E-01	-1.6857E-02	1.1548E-01	-1.1230E-02	.0000E+00	.0000E+00	4.9527E-05	7.6474E-02
4	7.1912E-02	-1.0507E-02	7.0942E-02	-6.8432E-03	.0000E+00	.0000E+00	2.2402E-05	4.6970E-02
5	1.0728E-01	-1.6053E-02	1.0582E-01	-1.0334E-02	.0000E+00	.0000E+00	2.6509E-05	7.0054E-02
6	2.0103E-01	-2.9212E-02	1.9843E-01	-1.8721E-02	.0000E+00	.0000E+00	4.4737E-05	1.3132E-01
7	1.9811E-01	-1.7498E-02	1.9650E-01	-1.1353E-02	.0000E+00	.0000E+00	3.1502E-05	1.2982E-01
8	1.4787E-01	-3.6673E-03	1.4758E-01	-2.7734E-03	.0000E+00	.0000E+00	1.7209E-05	9.7242E-02
9	1.1574E-01	8.7179E-04	1.1596E-01	5.5548E-04	.0000E+00	.0000E+00	1.1350E-05	7.6261E-02
10	1.0657E-01	2.2180E-03	1.0682E-01	1.3705E-03	.0000E+00	.0000E+00	1.0017E-05	7.0254E-02
11	9.9476E-02	5.2629E-03	1.0004E-01	3.3228E-03	.0000E+00	.0000E+00	9.3210E-06	6.5702E-02
12	6.3656E-02	6.3409E-03	6.4329E-02	4.0630E-03	.0000E+00	.0000E+00	5.4319E-06	4.2156E-02
13	5.4158E-02	5.9848E-03	5.4776E-02	3.8947E-03	.0000E+00	.0000E+00	4.5066E-06	3.5888E-02
14	5.0390E-02	9.0345E-03	5.1355E-02	5.8227E-03	.0000E+00	.0000E+00	4.2976E-06	3.3544E-02
15	2.8431E-02	1.7861E-03	2.8538E-02	1.2857E-03	.0000E+00	.0000E+00	2.3091E-06	1.8753E-02
16	1.5648E-02	1.0673E-03	1.5732E-02	7.3606E-04	.0000E+00	.0000E+00	1.1505E-06	1.0332E-02
17	6.5861E-03	1.0127E-03	6.6947E-03	6.5026E-04	.0000E+00	.0000E+00	4.4803E-07	4.3774E-03
18	4.2549E-03	2.5737E-03	4.5774E-03	1.5829E-03	.0000E+00	.0000E+00	2.9208E-07	2.9253E-03
19	9.8114E-03	1.7710E-03	9.9857E-03	1.1634E-03	.0000E+00	.0000E+00	6.8280E-07	6.5256E-03
20	3.3535E-02	3.6131E-03	3.3854E-02	2.4672E-03	.0000E+00	.0000E+00	2.6015E-06	2.2195E-02
21	9.7749E-03	2.6783E-03	1.0083E-02	1.7120E-03	.0000E+00	.0000E+00	6.0080E-07	6.5537E-03
22	1.8981E-02	7.8334E-03	1.9945E-02	5.0068E-03	.0000E+00	.0000E+00	1.1795E-06	1.2863E-02
23	6.6382E-02	1.7859E-02	6.8258E-02	1.2008E-02	.0000E+00	.0000E+00	3.6735E-06	4.4539E-02
24	5.3383E-02	1.5234E-02	5.5647E-02	1.0198E-02	.0000E+00	.0000E+00	2.2051E-06	3.5973E-02
25	2.3644E-02	7.0426E-03	2.4893E-02	4.6834E-03	.0000E+00	.0000E+00	7.5888E-07	1.6025E-02
26	1.6371E-02	5.3770E-03	1.7583E-02	3.4030E-03	.0000E+00	.0000E+00	3.9253E-07	1.1224E-02
27	2.9882E-03	1.0890E-03	3.2839E-03	5.8841E-04	.0000E+00	.0000E+00	4.5097E-08	2.0644E-03
28	1.7310E+00	-9.6518E-03	1.7341E+00	-6.6475E-03	1.9899E-11	.0000E+00	3.1192E-04	1.1406E+00

ifine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	out scatter	absorption	leakage	balance	
1	.0000E+00	2.3652E-02	.0000E+00	2.1923E-02	2.0888E-02	3.8476E-03	1.2910E-03	
2	.0000E+00	1.9973E-01	7.2190E-03	2.5308E-01	1.7499E-01	1.5391E-02	1.3221E-02	
3	.0000E+00	2.1622E-01	7.2210E-02	2.5859E-01	2.5540E-01	1.6199E-02	1.6837E-02	
4	.0000E+00	1.2357E-01	1.0518E-01	1.7729E-01	2.1153E-01	7.7139E-03	1.0507E-02	
5	.0000E+00	1.6344E-01	1.9291E-01	4.4519E-01	3.3517E-01	5.1334E-03	1.6053E-02	
6	.0000E+00	1.7594E-01	3.9203E-01	1.1912E+00	5.3069E-01	8.0566E-03	2.9212E-02	
7	.0000E+00	8.6784E-02	5.9403E-01	1.5657E+00	6.5537E-01	7.9992E-03	1.7493E-02	
8	.0000E+00	1.3352E-02	6.8976E-01	1.5756E+00	6.8656E-01	1.2985E-02	3.6669E-03	
9	.0000E+00	9.6903E-04	6.7864E-01	1.3734E+00	6.5911E-01	2.1446E-02	-8.6230E-04	
10	.0000E+00	7.1970E-05	6.5609E-01	1.2518E+00	6.2611E-01	3.2336E-02	-2.2210E-03	
11	.0000E+00	5.6521E-06	6.3008E-01	1.1675E+00	5.8216E-01	5.3224E-02	-5.2670E-03	
12	.0000E+00	3.9775E-07	5.0899E-01	6.3816E-01	4.5473E-01	5.8615E-02	-6.3426E-03	
13	.0000E+00	6.3159E-08	4.4940E-01	5.0663E-01	3.9941E-01	5.9982E-02	-5.9832E-03	
14	.0000E+00	1.2516E-08	4.3145E-01	4.6714E-01	3.5884E-01	8.1650E-02	-9.0849E-03	
15	.0000E+00	1.4145E-09	2.3601E-01	2.1314E-01	2.2894E-01	8.7853E-03	-1.7954E-03	
16	.0000E+00	4.1534E-10	1.6083E-01	9.7643E-02	1.5466E-01	7.1772E-03	-1.0729E-03	
17	.0000E+00	1.3376E-10	8.5685E-02	2.9926E-02	7.6789E-02	9.9098E-03	-1.0099E-03	
18	.0000E+00	9.5769E-11	7.5871E-02	1.6890E-02	4.8005E-02	3.0434E-02	-2.5733E-03	
19	.0000E+00	1.3539E-10	1.1675E-01	5.5458E-02	1.0540E-01	1.2951E-02	-1.7684E-03	
20	.0000E+00	2.2017E-10	2.7962E-01	3.2995E-01	2.5515E-01	2.7989E-02	-3.6282E-03	
21	.0000E+00	3.2229E-11	1.3653E-01	6.3626E-02	1.1289E-01	2.6290E-02	-2.6770E-03	
22	.0000E+00	3.7389E-11	2.5724E-01	1.6051E-01	1.8797E-01	7.7054E-02	-7.8945E-03	
23	.0000E+00	3.5748E-11	6.1148E-01	9.1549E-01	4.9269E-01	1.3645E-01	-1.7859E-02	
24	.0000E+00	9.7302E-12	6.4660E-01	8.0318E-01	5.3591E-01	1.2576E-01	-1.5232E-02	
25	.0000E+00	2.8483E-12	4.3002E-01	3.2775E-01	3.6832E-01	6.8843E-02	-7.0578E-03	
26	.0000E+00	1.9973E-12	3.3996E-01	3.3060E-01	2.7708E-01	6.2264E-02	-5.3779E-03	
27	.0000E+00	4.7596E-13	1.1050E-01	6.6986E-02	9.3696E-02	1.7888E-02	-1.0889E-03	
28	.0000E+00	1.0000E+00	8.8881E+00	1.4302E+01	8.8881E+00	9.9214E-01	9.6224E-03	
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtb rate	fiss rate	flux*db**2	total flux
1	1.3754E-02	2.6880E-09	1.3450E-02	-1.2910E-03	2.2948E-03	2.5485E-03	3.0345E-04	3.4968E-01
2	9.7889E-02	4.6250E-03	9.4562E-02	-1.3221E-02	1.5632E-05	1.1058E-02	1.6092E-03	2.4857E+00
3	1.2144E-01	5.6389E-03	1.1708E-01	-1.6857E-02	.0000E+00	1.3287E-02	1.8983E-03	3.0830E+00

Table with 10 columns containing numerical data in scientific notation, ranging from approximately -9.65189E-03 to 8.86679E-04.

!fine group summary for system

Summary table with 10 columns: 0 grp., fix source, fission source, in scatter, self scatter, out scatter, absorption, leakage, balance. Includes sub-section 'rt bdy flux' with 4 rows.

5	1.1184E-01	1.1327E-07	1.0288E-01	.0000E+00	.0000E+00	1.6027E-03	1.1178E-03	3.0558E+00
6	2.0981E-01	1.7184E-07	1.9292E-01	.0000E+00	.0000E+00	1.2648E-03	1.8704E-03	5.7306E+00
7	2.0836E-01	-4.5864E-06	1.9517E-01	.0000E+00	.0000E+00	1.1575E-03	1.3263E-03	5.5781E+00
8	1.4904E-01	-3.2055E-07	1.4709E-01	.0000E+00	.0000E+00	1.1357E-03	7.5422E-04	4.0985E+00
9	1.1541E-01	9.4171E-06	1.1602E-01	.0000E+00	.0000E+00	1.4817E-03	5.0956E-04	3.1807E+00
10	1.0579E-01	-2.9772E-06	1.0728E-01	.0000E+00	.0000E+00	3.1699E-03	4.6532E-04	2.9186E+00
11	9.7644E-02	-4.1809E-06	1.0109E-01	.0000E+00	.0000E+00	6.9396E-03	4.1950E-04	2.7002E+00
12	6.1447E-02	-1.6619E-06	6.9542E-02	.0000E+00	.0000E+00	9.3079E-03	2.4685E-04	1.7051E+00
13	5.2114E-02	1.6004E-06	5.9915E-02	.0000E+00	.0000E+00	1.1368E-02	2.0981E-04	1.4472E+00
14	4.7305E-02	-3.7610E-07	5.3070E-02	.0000E+00	.0000E+00	7.1207E-03	1.8680E-04	1.3207E+00
15	2.7846E-02	-9.2582E-06	2.8864E-02	.0000E+00	.0000E+00	1.5990E-03	1.1771E-04	7.7041E-01
16	1.5300E-02	-5.6170E-06	1.9927E-02	.0000E+00	.0000E+00	1.1210E-03	6.0288E-05	4.2343E-01
17	6.2448E-03	2.8156E-06	6.8949E-03	.0000E+00	.0000E+00	1.1697E-03	2.1612E-05	1.7398E-01
18	3.3426E-03	4.0909E-07	5.0858E-03	.0000E+00	.0000E+00	6.9987E-04	8.1588E-06	9.7004E-02
19	9.1957E-03	2.6851E-06	1.0827E-02	.0000E+00	.0000E+00	1.8943E-03	3.2739E-05	2.5692E-01
20	3.2276E-02	-1.5084E-05	3.4550E-02	.0000E+00	.0000E+00	1.3190E-02	1.2811E-04	8.9853E-01
21	8.8062E-03	1.2785E-06	1.0527E-02	.0000E+00	.0000E+00	1.4905E-02	2.6499E-05	2.4825E-01
22	1.6010E-02	-5.9881E-06	2.1601E-02	.0000E+00	.0000E+00	4.4403E-02	4.4678E-05	4.5853E-01
23	5.8363E-02	-3.5890E-06	7.3300E-02	.0000E+00	.0000E+00	7.3746E-02	1.7004E-04	1.6603E+00
24	4.5958E-02	9.1236E-07	6.0340E-02	.0000E+00	.0000E+00	6.5534E-02	1.0580E-04	1.3077E+00
25	1.9654E-02	4.7304E-06	2.7331E-02	.0000E+00	.0000E+00	3.7158E-02	3.6794E-05	5.6858E-01
26	1.2997E-02	-8.8560E-08	1.9733E-02	.0000E+00	.0000E+00	3.4122E-02	1.8564E-05	3.8053E-01
27	2.1963E-03	7.0589E-08	3.7489E-03	.0000E+00	.0000E+00	9.6566E-03	1.9986E-06	6.5146E-02
28	1.7196E+00	-2.9419E-05	1.7997E+00	.0000E+00	2.3169E-03	3.7627E-01	1.2924E-02	4.7464E+01

- elapsed time .02 min.

Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.1781E-03	5.1061E-03	5.3191E-03	2.5155E-03	3.1849E-03	5.5231E-03	3.7152E-03	1.7447E-03
2	7.1775E-04	5.0428E-03	5.8178E-03	3.4520E-03	4.3019E-03	6.1468E-03	4.3289E-03	2.1499E-03
3	1.2078E-03	5.5341E-03	5.9034E-03	2.9208E-03	3.8617E-03	6.7722E-03	4.3725E-03	1.8253E-03
4	8.2392E-04	4.3456E-03	4.9603E-03	2.3952E-03	2.8310E-03	4.8003E-03	3.3273E-03	1.8005E-03
5	8.5367E-04	4.4130E-03	5.0047E-03	2.4196E-03	2.8807E-03	4.8886E-03	3.3780E-03	1.8006E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.1140E-03	1.0146E-03	1.0927E-03	8.7578E-04	8.0240E-04	1.0707E-03	3.2718E-04	1.7354E-04
2	1.7925E-03	1.9561E-03	2.0440E-03	1.6054E-03	1.4342E-03	1.7400E-03	6.3852E-04	3.5256E-04
3	1.1222E-03	1.0525E-03	1.2900E-03	1.2241E-03	1.1384E-03	1.6319E-03	3.9903E-04	2.2289E-04
4	1.1972E-03	1.0960E-03	1.0909E-03	6.7818E-04	6.0202E-04	6.4589E-04	3.1140E-04	1.6149E-04
5	1.1952E-03	1.0964E-03	1.0460E-03	7.0585E-04	6.2902E-04	6.9546E-04	3.1616E-04	1.6467E-04
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.1795E-04	2.5510E-04	2.0982E-04	5.0326E-04	2.9220E-04	8.3522E-04	2.1001E-03	1.7612E-03
2	2.0448E-04	3.9477E-04	3.4364E-04	8.8664E-04	4.6147E-04	1.2782E-03	3.2198E-03	2.7116E-03
3	1.8174E-04	4.4007E-04	3.1914E-04	6.9657E-04	4.6925E-04	1.3653E-03	3.2016E-03	2.7169E-03
4	7.3943E-05	8.2546E-05	1.2481E-04	3.8452E-04	1.3947E-04	3.4350E-04	1.0889E-03	8.0740E-04
5	7.9817E-05	1.0085E-04	1.3466E-04	4.0043E-04	1.5627E-04	3.9601E-04	1.1522E-03	9.0808E-04
Ozone	grp. 25	grp. 26	grp. 27	grp. 28				
1	7.8962E-04	5.5908E-04	8.4670E-05	4.2263E-02				
2	1.2529E-03	8.9294E-04	1.5352E-04	5.5294E-02				
3	1.2498E-03	9.3112E-04	1.7881E-04	5.2224E-02				
4	3.3556E-04	2.0351E-04	2.5328E-05	3.4572E-02				
5	3.8356E-04	2.4115E-04	3.2855E-05	3.5471E-02				

libroad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.000E+07	2.665E+06	1.970E+09	7.228E-01
2	9.000E+05	1.517E+05	1.021E+07	2.771E-01
3	4.000E-01	1.244E-01	3.638E+05	1.204E-10
4	1.000E-05			

1 1200 d, second part of sse2h pass to make library

Ocell averaged fluxes

Ozone grp. 1 grp. 2 grp. 3
 1 3.92924E-01 1.13410E+00 2.09377E-01
 2 3.98192E-01 1.13511E+00 2.00375E-01
 3 4.01162E-01 1.13526E+00 1.95343E-01
 4 4.18364E-01 1.13645E+00 1.67444E-01
 5 4.16670E-01 1.13631E+00 1.70847E-01

Oflux disadvantage factors (zone average/cell average-flux)

Ozone grp. 1 grp. 2 grp. 3
 1 9.43011E-01 9.98057E-01 1.22985E+00
 2 9.56564E-01 9.98946E-01 1.17699E+00
 3 9.62782E-01 9.99076E-01 1.15329E+00
 4 1.00407E+00 1.00013E+00 9.89535E-01
 5 1.00000E+00 1.00000E+00 1.00000E+00

Ocell averaged currents

Ozone grp. 1 grp. 2 grp. 3
 1 1.73039E-02 1.85406E-02 6.41907E-03
 2 1.95314E-02 2.60133E-02 9.95008E-03
 3 1.94281E-02 2.26857E-02 1.01079E-02
 4 1.53620E-02 1.63172E-02 2.89577E-03
 5 1.55718E-02 1.66296E-02 3.26972E-03

Ozone volume vol. fraction
 1 1.25668E+00 4.56236E-02
 2 1.66687E-01 6.05165E-03
 3 6.58265E-01 2.38987E-02
 4 2.54624E+01 9.24428E-01
 5 2.75440E+01 1.00000E+00

elapsed time .02 min.

```

1  oooooooooo  oooooooooo  w  w  ppppppppp  ll  eeeeeeeeeee
   oooooooooo  oooooooooo  w  w  ppppppppp  ll  eeeeeeeeeee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   cc          cc  oo          oo  w  w  ppppppppp  ll  eeeeeeeee
   cc          cc  oo          oo  w  w  ppppppppp  ll  eeeeeeeee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   cc          cc  oo          oo  w  w  pp          pp  ll  ee
   oooooooooo  oooooooooo  w  w  ppppppppp  ll  eeeeeeeeeee
   oooooooooo  oooooooooo  w  w  ppppppppp  ll  eeeeeeeeeee
0

```

```

dtttttttttt  aaaaaaaaa  w  w  iiii            ssssssssss
dtttttttttt  aaaaaaaaa  w  w  iiii            ssssssssssss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aaaaaaaaaa  w  w  ii          ssssssssss
dd          dd  aaaaaaaaaa  w  w  ii          ssssssssss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aa          aa  w  w  ii          ss          ss
dd          dd  aa          aa  w  w  ii          ss          ss
dtttttttttt  aa          aa  ww          iiii            ssssssssssss
dtttttttttt  aa          aa  v          iiii            ssssssssss
0

```

```

0000000  zzzzzzzzz  //  11  6666666666  //  999999999  6666666666
00000000  zzzzzzzzzz  //  111  66666666666  //  99999999999  66666666666

```



```

****
**** this is not a scale configuration controlled code ****
****
****          jobname: davis ****
****
**** date of execution: 02/16/96 ****
****
**** time of execution: 10:06:14 ****
****
****
*****
*****
*****

```

```

1
0 -1q array has 1 entries.
0 0q array has 1 entries.
0 0q array has 1 entries.
0 1q array has 1 entries.
0 1q array has 1 entries.
0 1q array has 1 entries.
0 1q array has 1 entries.
0 1q array has 1 entries.
0 1q array has 1 entries.
0 2q array has 1 entries.
0 * core allocated to array-data (by -1$ or default) was 200000 words. *
1 * broed 3-group flux weighting factors *
0
0      therm = .5134
0      res = .4563
0      fast = 3.5488
0 user requested (see jacob) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from anpx (normalized to thermal flux), barns

```

10010 to 10020	2.86486E-01
10010 tot-cap	2.86486E-01
50100 to 40100	2.54618E-02
50100 to 10010	2.54618E-02
50100 to 40090	3.93698E-03
50100 to 10020	3.93698E-03
50100 to 30070	3.29433E+03
50100 to 20040	3.29433E+03
50100 to 10030	9.56623E-02
50100 tot-cap	3.29426E+03
50110 to 50100	1.13713E-05
50110 to 50120	4.36372E-03
50110 to 40110	1.45109E-06
50110 to 10010	1.45109E-06
50110 to 40090	1.29495E-05
50110 to 10030	1.29495E-05
50110 to 30080	1.69049E-04
50110 to 20040	1.69049E-04
50110 tot-cap	4.55854E-03
80160 to 80170	1.53057E-04
80160 to 70160	9.94968E-05
80160 to 10010	9.94968E-05
80160 to 70150	1.87650E-05
80160 to 10020	1.87650E-05
80160 to 60130	2.74917E-02
80160 to 20040	2.74917E-02
80160 to 80161	4.36358E-03

80160	tot-cap	2.77630E-02
360830	to 360820	2.25882E-02
360830	to 360810	2.38476E-09
360830	to 360840	1.56736E+02
360830	to 350830	9.19933E-04
360830	to 10010	9.19933E-04
360830	to 350820	7.46029E-06
360830	to 10020	7.46029E-06
360830	to 350810	2.60751E-06
360830	to 10030	2.60751E-06
360830	to 340810	4.22004E-08
360830	to 20030	4.22004E-08
360830	to 340800	4.95479E-05
360830	to 20040	4.95479E-05
360830	tot-cap	1.56760E+02
360850	to 360860	1.42215E+00
360850	tot-cap	1.42215E+00
380900	to 380910	6.37479E-01
380900	tot-cap	6.37479E-01
390890	to 390900	1.00873E+00
390890	tot-cap	1.00873E+00
400980	to 400940	1.39837E+01
400980	tot-cap	1.39837E+01
400940	to 400950	1.93314E-01
400940	tot-cap	1.93314E-01
400950	to 400960	2.31722E+00
400950	tot-cap	2.31722E+00
410940	to 410950	3.99247E+01
410940	tot-cap	3.99247E+01
420950	to 420960	3.88237E+01
420950	tot-cap	3.88237E+01
430990	to 430980	6.85361E-03
430990	to 431000	9.12749E+01
430990	tot-cap	9.12817E+01
441010	to 441020	2.93358E+01
441010	tot-cap	2.93358E+01
441060	to 441070	9.03144E-01
441060	tot-cap	9.03144E-01
451080	to 451020	2.48212E-03
451080	to 451040	3.49820E+02
451080	tot-cap	3.49822E+02
451050	to 451060	8.22852E+03
451050	tot-cap	8.22852E+03
461050	to 461060	3.50150E+01
461050	tot-cap	3.50150E+01
461080	to 461090	7.07706E+01
461080	tot-cap	7.07706E+01
471090	to 471080	5.77202E-03
471090	to 471100	3.78681E+02
471090	to 461090	3.25365E-04
471090	to 10010	3.25365E-04
471090	to 451050	2.70840E-04
471090	to 20040	2.70840E-04
471090	to 471091	6.66486E-01
471090	tot-cap	3.78687E+02
511240	to 511250	1.24499E+01
511240	tot-cap	1.24499E+01
541310	to 541300	6.99877E-02
541310	to 541290	1.46346E-05
541310	to 541320	2.57890E+02

541310 to 531310 4.17668E-05
541310 to 10010 4.17668E-05
541310 to 531300 5.86917E-07
541310 to 10020 5.86917E-07
541310 to 531290 6.01824E-07
541310 to 10080 6.01824E-07
541310 to 521280 1.95981E-05
541310 to 20040 1.95981E-05
541310 tot-cap 2.57760E+02
541320 to 541310 1.13062E-02
541320 to 541300 2.39796E-05
541320 to 541330 9.54927E-01
541320 to 531320 8.60086E-06
541320 to 10010 8.60086E-06
541320 to 531310 3.64400E-07
541320 to 10020 3.64400E-07
541320 to 531300 4.90666E-08
541320 to 10080 4.90666E-08
541320 to 521290 1.06299E-06
541320 to 20040 1.06299E-06
541320 tot-cap 9.66268E-01
541350 to 541360 1.48021E+06
541350 tot-cap 1.48021E+06
541360 to 541350 1.98400E-02
541360 to 541340 5.90690E-05
541360 to 541370 1.25298E-01
541360 to 531360 3.57113E-07
541360 to 10010 3.57113E-07
541360 to 531350 1.32956E-07
541360 to 10020 1.32956E-07
541360 to 531340 3.00873E-08
541360 to 10080 3.00873E-08
541360 to 521330 2.99573E-07
541360 to 20040 2.99573E-07
541360 tot-cap 1.44698E-01
551330 to 551320 9.05656E-05
551330 to 551340 1.08136E+02
551330 to 541330 9.72211E-04
551330 to 10010 9.72211E-04
551330 to 531300 1.54730E-05
551330 to 20040 1.54730E-05
551330 tot-cap 1.08146E+02
551340 to 551350 1.31999E+02
551340 tot-cap 1.31999E+02
551350 to 551360 2.21934E+01
551350 tot-cap 2.21934E+01
551370 to 551380 2.37729E-01
551370 tot-cap 2.37729E-01
561360 to 561370 9.33725E-01
561360 tot-cap 9.33725E-01
571390 to 571400 8.09313E+00
571390 tot-cap 8.09313E+00
581440 to 581450 1.27143E+00
581440 tot-cap 1.27143E+00
591410 to 591400 6.48971E-08
591410 to 591390 1.86466E-06
591410 to 571370 2.78096E-06
591410 to 20040 5.73846E-06
591410 to 581400 1.97727E-05
591410 to 10010 5.60874E-06

591410 to 591420 1.20857E+01
591410 to 581410 5.28492E-05
591410 to 10020 1.65345E-05
591410 to 581390 1.73401E-06
591410 to 10080 1.73401E-06
591410 to 571390 1.67463E-08
591410 to 20080 1.67463E-08
591410 to 571380 5.46036E-05
591410 tot-cap 1.20923E+01
591430 to 591440 1.00864E+02
591430 tot-cap 1.00864E+02
601430 to 601420 9.92310E-02
601430 to 601410 1.01344E-05
601430 to 581390 2.16519E-05
601430 to 20040 6.05348E-04
601430 to 591420 4.24225E-06
601430 to 10010 4.34810E-05
601430 to 601440 2.00818E+02
601430 to 591430 4.18828E-05
601430 to 10020 2.64399E-06
601430 to 591410 3.80998E-06
601430 to 10080 3.80998E-06
601430 to 581410 1.83054E-08
601430 to 20080 1.83054E-08
601430 to 581400 5.84696E-04
601430 tot-cap 2.00918E+02
601450 to 601440 1.27275E-01
601450 to 601430 1.29994E-04
601450 to 581410 9.09047E-06
601450 to 20040 2.26964E-04
601450 to 591440 2.43057E-06
601450 to 10010 1.57793E-05
601450 to 601460 8.02349E+01
601450 to 591450 1.48098E-05
601450 to 10020 1.46108E-06
601450 to 591430 2.30841E-06
601450 to 10080 2.30841E-06
601450 to 581430 4.68975E-09
601450 to 20080 4.68975E-09
601450 to 581420 2.17874E-04
601450 tot-cap 8.03625E+01
601470 to 601480 1.95601E+02
601470 tot-cap 1.95601E+02
611470 to 611460 3.48851E-02
611470 to 611450 1.08785E-04
611470 to 591430 9.62018E-06
611470 to 20040 8.86288E-05
611470 to 601460 1.33156E-05
611470 to 10010 3.02595E-05
611470 to 611480 5.95206E+02
611470 to 601470 2.69774E-05
611470 to 10020 1.00834E-05
611470 to 601450 3.78822E-06
611470 to 10080 3.78822E-06
611470 to 591450 5.69570E-09
611470 to 20080 5.69570E-09
611470 to 591440 7.95186E-05
611470 tot-cap 5.95240E+02
611480 to 611490 1.20932E+04
611480 tot-cap 1.20932E+04

621470 to 621460 9.09486E-02
621470 to 621450 8.18966E-03
621470 to 601430 7.01333E-05
621470 to 20040 1.33299E-03
621470 to 611460 1.65060E-04
621470 to 10010 2.34814E-04
621470 to 621480 2.40718E+02
621470 to 611470 2.06989E-04
621470 to 10020 1.37235E-04
621470 to 611450 1.47359E-04
621470 to 10030 1.47359E-04
621470 to 601450 6.78025E-05
621470 to 20030 6.78025E-05
621470 to 601440 1.26285E-03
621470 to 621471 1.74035E+00
621470 tot-cap 2.40819E+02
621490 to 621480 5.13940E-02
621490 to 621470 4.08219E-05
621490 to 621500 4.53374E+04
621490 to 611460 5.21771E-04
621490 to 10010 5.21771E-04
621490 to 601460 5.21771E-04
621490 to 20040 5.21771E-04
621490 tot-cap 4.53374E+04
621500 to 621510 1.36769E+02
621500 tot-cap 1.36769E+02
621510 to 621500 1.71069E-01
621510 to 621490 1.53609E-04
621510 to 601470 1.71465E-05
621510 to 20040 1.33173E-04
621510 to 611500 2.10336E-05
621510 to 10010 1.63148E-05
621510 to 621520 5.00646E+03
621510 to 611510 1.50297E-05
621510 to 10020 8.18289E-07
621510 to 611490 1.48719E-06
621510 to 10030 1.48719E-06
621510 to 601490 1.53209E-09
621510 to 20030 1.53209E-09
621510 to 601480 1.16026E-04
621510 tot-cap 5.00663E+03
621520 to 621510 2.05669E-02
621520 to 621500 1.38992E-04
621520 to 601480 3.10523E-06
621520 to 20040 1.28946E-05
621520 to 611510 8.90969E-07
621520 to 10010 2.62922E-06
621520 to 621530 7.36977E+02
621520 to 611520 2.33556E-06
621520 to 10020 5.97308E-07
621520 to 611500 1.55346E-07
621520 to 10030 1.55346E-07
621520 to 601500 4.70786E-10
621520 to 20030 4.70786E-10
621520 to 601490 9.78938E-06
621520 tot-cap 7.36997E+02
631530 to 631520 1.99783E-02
631530 to 631510 2.98338E-05
631530 to 611490 4.60126E-05
631530 to 20040 6.73243E-04

631530 to 621520 8.34917E-06
631530 to 10010 6.99057E-05
631530 to 631540 6.35374E+02
631530 to 621530 6.70570E-05
631530 to 10020 5.50050E-06
631530 to 621510 1.23327E-06
631530 to 10080 1.23327E-06
631530 to 611510 2.81953E-08
631530 to 20080 2.81953E-08
631530 to 611500 6.27230E-04
631530 tot-cap 6.35375E+02
631540 to 631530 3.19877E-02
631540 to 631520 1.14727E-05
631540 to 611500 1.11551E-10
631540 to 20040 8.10863E-04
631540 to 621530 2.51107E-06
631540 to 10010 1.32731E-03
631540 to 631550 1.08235E+03
631540 to 621540 1.32730E-03
631540 to 10020 2.50967E-06
631540 to 621520 4.25037E-06
631540 to 10080 4.25037E-06
631540 to 611520 1.80255E-08
631540 to 20080 1.80255E-08
631540 to 611510 8.10863E-04
631540 tot-cap 1.08235E+03
631550 to 631540 2.62221E-02
631550 to 631530 7.34276E-05
631550 to 611510 1.97547E-06
631550 to 20040 9.72207E-06
631550 to 621540 4.00897E-06
631550 to 10010 8.39165E-06
631550 to 631560 2.57630E+03
631550 to 621550 6.44346E-06
631550 to 10020 2.05572E-06
631550 to 621530 6.80514E-07
631550 to 10080 6.80514E-07
631550 to 611530 1.54241E-10
631550 to 20080 1.54241E-10
631550 to 611520 7.74659E-06
631550 tot-cap 2.57633E+03
641550 to 641560 1.72882E+04
641550 tot-cap 1.72882E+04
922340 to 922330 6.86982E-03
922340 fision 4.65762E+00
922340 ru-sigf 1.22751E+01
922340 to 922320 9.96089E-05
922340 to 922350 1.91754E+02
922340 to 922341 3.11810E+00
922340 tot-cap 1.96423E+02
922350 to 922340 3.12804E-02
922350 fision 3.65849E+02
922350 ru-sigf 8.86019E+02
922350 to 922330 3.00055E-05
922350 to 922360 8.77665E+01
922350 to 922351 8.86841E-02
922350 tot-cap 4.53648E+02
922360 to 922350 3.49963E-02
922360 fision 2.00610E+00
922360 ru-sigf 5.51004E+00

922360 to 922340 4.66385E-04
922360 to 922370 7.20087E+01
922360 to 922361 3.41118E+00
922360 tot-cap 7.40502E+01
922380 to 922370 6.98884E-02
922380 fission 1.00706E+00
922380 nu-sigf 2.83726E+00
922380 to 922360 4.51706E-04
922380 to 922390 8.80319E+00
922380 tot-cap 9.88059E+00
932370 to 932360 1.59339E-02
932370 fission 5.41228E+00
932370 nu-sigf 1.63064E+01
932370 to 932360 6.09581E-05
932370 to 932380 3.06473E+02
932370 to 932371 7.99538E-01
932370 tot-cap 3.11901E+02
942380 to 942370 2.56115E-03
942380 fission 2.30793E+01
942380 nu-sigf 6.54744E+01
942380 to 942360 1.43335E-05
942380 to 942390 2.68704E+02
942380 to 942381 3.13875E+00
942380 tot-cap 2.91786E+02
942390 to 942380 1.35444E-02
942390 fission 8.31324E+02
942390 nu-sigf 2.39040E+03
942390 to 942370 2.30761E-05
942390 to 942360 2.28757E-08
942390 to 942400 4.63709E+02
942390 tot-cap 1.29506E+03
942400 to 942390 6.37841E-03
942400 fission 6.08396E+00
942400 nu-sigf 1.90778E+01
942400 to 942380 6.22432E-05
942400 to 942410 1.23941E+03
942400 tot-cap 1.24550E+03
942410 to 942400 8.00730E-02
942410 fission 8.98817E+02
942410 nu-sigf 2.63740E+03
942410 to 942390 1.33183E-04
942410 to 942420 2.92612E+02
942410 tot-cap 1.19151E+03
942420 to 942410 2.60009E-02
942420 fission 4.69482E+00
942420 nu-sigf 1.47141E+01
942420 to 942400 3.16105E-04
942420 to 942430 3.37105E+02
942420 tot-cap 3.41826E+02
952410 fission 1.27105E+01
952410 nu-sigf 4.11364E+01
952410 to 952420 1.01153E+03
952410 tot-cap 1.02424E+03
952430 fission 3.62531E+00
952430 nu-sigf 1.21919E+01
952430 to 952440 4.29741E+02
952430 tot-cap 4.33366E+02
962440 to 962430 6.24886E-03
962440 fission 1.60032E+01
962440 nu-sigf 5.36525E+01

962440 to 962420 6.23160E-05
962440 to 962450 1.46352E+02
962440 to 962441 4.00245E+00
962440 tot-cap 1.62362E+02

- Othe reaction 50100 to 30070 was not used, because 50100 is not in library., (in subr pool) in the search of library number 3
- Othe reaction 50100 to 40090 was not used, because 50100 is not in library., (in subr pool) in the search of library number 3
- Othe reaction 50110 to 40090 was not used, because 50110 is not in library., (in subr pool) in the search of library number 3
- Othe reaction 50100 to 40100 was not used, because 50100 is not in library., (in subr pool) in the search of library number 3
- Othe reaction 80160 to 80161 was not used, because 80161 is not in library., (in subr pool)
- Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
- Othe fission product transitions for 922340 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe reaction 922340 to 922341 was not used, because 922341 is not in library., (in subr pool)
- Othe reaction 922350 to 922351 was not used, because 922351 is not in library., (in subr pool)
- Othe fission product transitions for 922360 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe reaction 922360 to 922361 was not used, because 922361 is not in library., (in subr pool)
- Othe fission product transitions for 922370 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe reaction 922370 to 922371 was not used, because 922371 is not in library., (in subr pool)
- Othe fission product transitions for 942380 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe reaction 942380 to 942381 was not used, because 942381 is not in library., (in subr pool)
- Othe fission product transitions for 942400 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe fission product transitions for 942420 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe fission product transitions for 952430 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe fission product transitions for 962440 were not used. library fissile nuclides are 922330 922350 942410 922380 942390
Use substitute nuclide in block 8 data. or, update with new fission yield data.
- Othe reaction 962440 to 962441 was not used, because 962441 is not in library., (in subr pool)

1
0 case completed. date, 2/16/1996

0 * normal termination *

1	oooooocoooo	TTTTTTTTT	iiiiiiiiiii	999999999	eeeeeeeeeee	m	m	SSSSSSSSSS
	oooooooooooo	TTTTTTTTTTT	iiiiiiiiiii	99999999999	eeeeeeeeeee	mm	m	SSSSSSSSSSSS
	oo	T T	ii	99	ee	mm	m	SS
	oo	oo T T	ii	99	ee	m m	m	SS
	oo	oo T T	ii	99	ee	m m	m	SS
	oo	oo TTTTTTTTTT	ii	99 999999	eeeeeeeeee	m m	m	SSSSSSSSSSSS
	oo	oo TTTTTTTTTT	ii	99 999999	eeeeeeeeee	m m	m	SSSSSSSSSSSS
	oo	oo T T	ii	99	ee	m	m m	SS
	oo	oo T T	ii	99	ee	m	m m	SS
	oo	oo T T	ii	99	ee	m	mm	SS

first library updated was...

pass 1
 pass 0
 scale-system control module sas2 library
 used a time-dependent neutron spectrum, for each of the above passes
 pass 0 applies start-up fuel densities
 pass n applies mid time densities of nth library interval

first library updated was...

 *
 * prelim lwr origen-s binary working library--id = 1143 *
 * made from modified card-image origen-s libraries of scale 4.2 *
 * data from the light element, actinide, and fission product libraries *
 * decay data, including gamma and total energy, are from endf/b-vi *
 * *
 * neutron flux spectrum factors and cross sections were produced from *
 * the 'presas2' case updating all nuclides on the scale 'burnup' library *
 * *
 * fission product yields are from endf/b-v *
 * *
 * photon libraries use an 18-energy-group structure *
 * the photon data are from the master photon data base, *
 * produced to include bremsstrahlung from uc2 matrix *
 * *
 * see information above this box (if present) for later updates *
 * *

0
 0 other identification and sizes of library.
 0 data set name: ft33f001
 0 2/16/1996 date library was produced
 0 1697 total number of nuclides in library
 0 689 number of light-element nuclides
 0 129 number of actinide nuclides
 0 879 number of fission product nuclides
 0 7925 number of nonzero off-diagonal matrix elements
 0

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gcl/mtu burn high temp light elements page 1
 0 nuclide concentrations, grams
 basis =single reactor assembly

total initial 1E-18 d
 .00E+00 .00E+00

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gcl/mtu burn high temp actinides page 2
 0 nuclide concentrations, grams
 basis =single reactor assembly

 initial 1E-18 d
 u234 1.11E+02 1.11E+02
 u235 1.39E+04 1.39E+04
 u236 6.40E+01 6.40E+01
 u238 4.50E+05 4.50E+05
 total 4.64E+05 4.64E+05

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gcl/mtu burn high temp page 3
 power= 7.25mw, burnup= 1160.mjd, flux= 1.69E+13n/cm^2-sec
 basis =

0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
 0 initial 40.0 d 80.0 d 120.0 d 160.0 d 160.0 d
 productions 3.258919E+04 3.290867E+04 3.325273E+04 3.354246E+04 3.378176E+04 3.378195E+04

absorptions	2.444205E+04	2.533198E+04	2.567749E+04	2.599583E+04	2.629677E+04	2.630302E+04
k infinity	1.333324E+00	1.298898E+00	1.295015E+00	1.290802E+00	1.284635E+00	1.284337E+00
initial		40.0 d	80.0 d	120.0 d	160.0 d	160.0 d
actinide						
absorptions	2.444205E+04	2.466998E+04	2.495103E+04	2.517635E+04	2.540672E+04	2.540682E+04
non-actinide						
abs. fracs.	.000000E+00	2.613515E-02	2.907044E-02	3.152382E-02	3.384656E-02	3.407222E-02

0 sas2h: babcock wilcox 15x15, 3.00wck, 20gud/mtu burn high temp actinides page 4
 power= 7.25mw, burnup= 1160.mwd, flux= 1.69E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	40.0 d	80.0 d	120.0 d	160.0 d	160.0 d
he 4	.00E+00	1.37E-06	5.40E-06	1.23E-05	2.22E-05	2.22E-05
th226	.00E+00	3.39E-21	1.00E-20	1.79E-20	2.67E-20	2.67E-20
th227	.00E+00	6.58E-18	4.57E-17	1.38E-16	2.97E-16	2.97E-16
th228	.00E+00	1.08E-12	4.34E-12	9.84E-12	1.78E-11	1.78E-11
th229	.00E+00	5.13E-14	2.07E-13	4.70E-13	8.44E-13	8.44E-13
th230	.00E+00	1.45E-07	2.85E-07	4.21E-07	5.52E-07	5.52E-07
th231	.00E+00	3.61E-10	4.72E-10	5.78E-10	6.80E-10	6.78E-10
th232	.00E+00	1.32E-09	3.51E-09	6.54E-09	1.04E-08	1.04E-08
th233	.00E+00	1.07E-15	2.82E-15	5.21E-15	8.23E-15	6.18E-15
th234	.00E+00	1.91E-08	2.51E-08	2.70E-08	2.76E-08	2.76E-08
pa231	.00E+00	7.55E-09	1.81E-08	3.14E-08	4.71E-08	4.71E-08
pa232	.00E+00	5.80E-12	1.38E-11	2.38E-11	3.59E-11	3.54E-11
pa233	.00E+00	5.98E-11	2.41E-10	4.92E-10	7.87E-10	7.87E-10
pa234m	.00E+00	6.43E-13	8.46E-13	9.10E-13	9.30E-13	9.30E-13
pa234	.00E+00	2.91E-13	3.93E-13	4.37E-13	4.64E-13	4.63E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	3.29E-18	9.70E-18	1.73E-17	2.59E-17	2.58E-17
u231	.00E+00	1.47E-16	3.22E-16	5.05E-16	7.01E-16	7.01E-16
u232	.00E+00	2.03E-09	4.18E-09	6.52E-09	9.15E-09	9.15E-09
u233	.00E+00	2.08E-07	4.06E-07	5.94E-07	7.74E-07	7.74E-07
u234	4.78E-01	4.71E-01	4.67E-01	4.62E-01	4.58E-01	4.58E-01
u235	5.92E+01	5.77E+01	5.63E+01	5.49E+01	5.36E+01	5.36E+01
u236	2.71E-01	5.44E-01	8.07E-01	1.06E+00	1.31E+00	1.31E+00
u237	.00E+00	1.80E-03	2.07E-03	2.31E-03	2.53E-03	2.53E-03
u238	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03
u239	.00E+00	4.74E-04	4.70E-04	4.67E-04	4.65E-04	3.54E-04
u240	.00E+00	.00E+00	1.14E-38	8.79E-37	1.92E-35	1.92E-35
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	5.53E-12	2.80E-11	6.92E-11	1.30E-10	1.30E-10
np236m	.00E+00	9.07E-11	2.21E-10	3.64E-10	5.20E-10	5.18E-10
np236	.00E+00	3.89E-10	1.98E-09	5.00E-09	9.58E-09	9.58E-09
np237	.00E+00	5.39E-08	1.32E-02	2.19E-02	3.14E-02	3.14E-02
np238	.00E+00	6.47E-06	1.58E-05	2.60E-05	3.71E-05	3.71E-05
np239	.00E+00	6.84E-02	6.79E-02	6.75E-02	6.71E-02	6.71E-02
np240m	.00E+00	.00E+00	9.72E-41	7.50E-39	1.64E-37	1.64E-37
np240	.00E+00	1.13E-06	1.11E-06	1.10E-06	1.09E-06	9.82E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	.00E+00	5.02E-10	2.62E-09	6.57E-09	1.25E-08	1.25E-08
pu237	.00E+00	2.88E-10	9.86E-10	1.86E-09	2.81E-09	2.81E-09
pu238	.00E+00	3.19E-05	1.71E-04	4.34E-04	8.31E-04	8.31E-04
pu239	.00E+00	7.08E-01	1.42E+00	2.08E+00	2.68E+00	2.68E+00
pu240	.00E+00	1.06E-02	4.03E-02	8.48E-02	1.41E-01	1.41E-01
pu241	.00E+00	4.33E-04	3.18E-03	9.97E-03	2.20E-02	2.20E-02
pu242	.00E+00	1.97E-06	2.84E-05	1.34E-04	3.98E-04	3.98E-04
pu243	.00E+00	2.42E-10	3.47E-09	1.63E-08	4.79E-08	4.68E-08
pu244	.00E+00	3.31E-31	5.68E-28	4.38E-26	9.57E-25	9.57E-25
pu245	.00E+00	2.51E-37	4.25E-34	3.28E-32	7.14E-31	7.07E-31

```

pl246 .00E+00 2.10E-40 6.03E-37 6.00E-35 1.53E-33 1.53E-33
an239 .00E+00 8.52E-18 1.22E-16 5.69E-16 1.67E-15 1.65E-15
an240 .00E+00 3.65E-15 5.22E-14 2.44E-13 7.16E-13 7.15E-13
    
```

```

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp          actinides          page 5
power= 7.25mw, burnup= 1160.mwd, flux= 1.69E+13n/cm^2-sec
    
```

```

0          nuclide concentrations, gram atoms
          basis = single reactor assembly
    
```

	charge	40.0 d	80.0 d	120.0 d	160.0 d	160.0 d
an241	.00E+00	5.91E-07	8.50E-06	3.99E-05	1.18E-04	1.18E-04
an242m	.00E+00	1.12E-09	3.03E-08	2.04E-07	7.73E-07	7.73E-07
an242	.00E+00	7.01E-10	1.00E-08	4.68E-08	1.37E-07	1.36E-07
an243	.00E+00	6.68E-09	1.90E-07	1.34E-06	5.31E-06	5.31E-06
an244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an244	.00E+00	2.18E-12	6.14E-11	4.32E-10	1.70E-09	1.68E-09
an245	.00E+00	2.30E-35	3.87E-32	2.99E-30	6.30E-29	6.30E-29
an246	.00E+00	.00E+00	1.51E-39	1.50E-37	3.83E-36	3.83E-36
an241	.00E+00	3.37E-21	3.33E-19	4.68E-18	2.94E-17	2.94E-17
an242	.00E+00	4.79E-09	1.31E-07	9.06E-07	3.49E-06	3.49E-06
an243	.00E+00	3.13E-12	1.71E-10	1.79E-09	8.97E-09	8.97E-09
an244	.00E+00	2.43E-11	1.36E-09	1.45E-08	7.66E-08	7.67E-08
an245	.00E+00	2.50E-14	2.75E-12	4.31E-11	3.00E-10	3.00E-10
an246	.00E+00	4.53E-17	9.92E-15	2.52E-13	2.15E-12	2.15E-12
an247	.00E+00	1.35E-20	5.86E-18	2.03E-16	2.49E-15	2.49E-15
an248	.00E+00	1.73E-23	1.49E-20	7.66E-19	1.25E-17	1.25E-17
an249	.00E+00	1.04E-28	8.86E-26	4.53E-24	7.37E-23	6.67E-23
an250	.00E+00	8.14E-34	1.38E-30	1.05E-28	2.27E-27	2.27E-27
an251	.00E+00	2.04E-41	3.47E-38	2.63E-36	5.66E-35	3.87E-35
totals	1.95E+03	1.95E+03	1.95E+03	1.95E+03	1.94E+03	1.94E+03
flux		1.71E+13	1.70E+13	1.69E+13	1.68E+13	1.68E+02

```

0 1q array has 20 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 4q array has 1 entries.
0 5q array has 12 entries.
1library information...
    
```

cross-section data taken from position number 2 of library on unit 33.

```

pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
pass 0 applies start-up fuel densities
pass n applies mid time densities of nth library interval
first library updated was...
pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
pass 0 applies start-up fuel densities
pass n applies mid time densities of nth library interval
first library updated was...
    
```

```

*****
*
*      pretim lw origen-s binary working library--id = 1143      *
*      made from modified card-image origen-s libraries of scale 4.2 *
*      data from the light element, actinide, and fission product libraries *
*      decay data, including gamma and total energy, are from endf/b-vi *
*
*
    
```

```

*
* neutron flux spectrum factors and cross sections were produced from
* the 'press2' case updating all nuclides on the scale 'burnup' library
*
* fission product yields are from endf/b-v
*
* photon libraries use an 18-energy-group structure
* the photon data are from the master photon data base,
* produced to include bremsstrahlung from uo2 matrix
*
* see information above this box (if present) for later updates
*
*****

```

```

0
0 *****
0 .other identification and sizes of library.
0 data set name: ft33f001
0 2/16/1996 date library was produced
0 1697 total number of nuclides in library
0 689 number of light-element nuclides
0 129 number of actinide nuclides
0 879 number of fission product nuclides
0 795 number of nonzero off-diagonal matrix elements
0 *****

```

```

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gwd/mtu burn high temp
power= 7.25mw, burnup= 2520.mwd, flux= 1.64E+13n/cm**2-sec
basis =

```

```

0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0 initial 200.0 d 240.0 d 280.0 d 320.0 d 320.0 d
0 productions 3.42759E+04 3.45019E+04 3.46924E+04 3.48491E+04 3.49763E+04 3.49766E+04
0 absorptions 2.70098E+04 2.72749E+04 2.75823E+04 2.78521E+04 2.81079E+04 2.81199E+04
0 k infinity 1.26942E+00 1.26391E+00 1.25777E+00 1.25122E+00 1.24435E+00 1.24383E+00
0 initial 200.0 d 240.0 d 280.0 d 320.0 d 320.0 d
0 actinide
0 absorptions 2.60939E+04 2.63209E+04 2.65359E+04 2.67376E+04 2.69267E+04 2.69269E+04
0 non-actinide
0 abs. fracs. 3.35957E-02 3.57752E-02 3.79577E-02 4.00146E-02 4.20265E-02 4.24253E-02

```

```

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gwd/mtu burn high temp
power= 7.25mw, burnup= 2520.mwd, flux= 1.64E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
0 basis = single reactor assembly

```

	charge	200.0 d	240.0 d	280.0 d	320.0 d	320.0 d
he 4	2.22E-05	3.60E-05	5.44E-05	7.89E-05	1.11E-04	1.11E-04
th226	2.67E-20	3.86E-20	5.16E-20	6.63E-20	8.34E-20	8.33E-20
th227	2.97E-16	5.39E-16	8.77E-16	1.32E-15	1.89E-15	1.89E-15
th228	1.78E-11	2.84E-11	4.23E-11	5.98E-11	8.14E-11	8.14E-11
th229	8.44E-13	1.34E-12	1.98E-12	2.79E-12	3.61E-12	3.61E-12
th230	5.52E-07	6.79E-07	8.02E-07	9.21E-07	1.04E-06	1.04E-06
th231	6.78E-10	8.06E-10	9.04E-10	1.00E-09	1.09E-09	1.09E-09
th232	1.04E-08	1.50E-08	2.03E-08	2.64E-08	3.33E-08	3.33E-08
th233	6.18E-15	1.23E-14	1.67E-14	2.17E-14	2.72E-14	1.53E-14
th234	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08
pa231	4.71E-08	6.57E-08	8.66E-08	1.10E-07	1.39E-07	1.39E-07
pa232	3.54E-11	5.07E-11	6.67E-11	8.43E-11	1.09E-10	1.09E-10
pa233	7.87E-10	1.12E-09	1.49E-09	1.88E-09	2.31E-09	2.31E-09
pa234m	9.30E-13	9.36E-13	9.38E-13	9.38E-13	9.38E-13	9.38E-13
pa234	4.63E-13	4.89E-13	5.13E-13	5.38E-13	5.66E-13	5.60E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	2.58E-17	3.74E-17	5.00E-17	6.43E-17	8.08E-17	8.07E-17

u231	7.01E-16	9.83E-16	1.25E-15	1.56E-15	1.91E-15	1.91E-15
u232	9.15E-09	1.23E-08	1.60E-08	2.02E-08	2.52E-08	2.52E-08
u233	7.74E-07	9.59E-07	1.14E-06	1.30E-06	1.47E-06	1.47E-06
u234	4.58E-01	4.54E-01	4.49E-01	4.45E-01	4.41E-01	4.41E-01
u235	5.36E+01	5.23E+01	5.10E+01	4.98E+01	4.86E+01	4.86E+01
u236	1.31E+00	1.55E+00	1.78E+00	2.00E+00	2.22E+00	2.22E+00
u237	2.53E-03	2.87E-03	3.09E-03	3.30E-03	3.50E-03	3.50E-03
u238	1.89E+03	1.89E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	3.54E-04	4.81E-04	4.79E-04	4.78E-04	4.77E-04	2.76E-04
u240	1.92E-35	2.19E-34	1.60E-33	8.50E-33	3.57E-32	3.57E-32
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.30E-10	2.17E-10	3.28E-10	4.61E-10	6.18E-10	6.18E-10
np236m	5.18E-10	7.48E-10	9.48E-10	1.16E-09	1.39E-09	1.37E-09
np236	9.58E-09	1.63E-08	2.51E-08	3.60E-08	4.92E-08	4.92E-08
np237	3.14E-02	4.21E-02	5.39E-02	6.57E-02	7.85E-02	7.85E-02
np238	3.71E-05	5.08E-05	6.44E-05	7.88E-05	9.41E-05	9.37E-05
np239	6.71E-02	6.95E-02	6.92E-02	6.90E-02	6.88E-02	6.88E-02
np240m	1.64E-37	1.87E-36	1.37E-35	7.26E-35	3.05E-34	3.05E-34
np240	9.82E-07	1.17E-06	1.16E-06	1.15E-06	1.15E-06	9.34E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
p236	1.25E-08	2.12E-08	3.23E-08	4.60E-08	6.23E-08	6.23E-08
p237	2.81E-09	3.95E-09	5.05E-09	6.10E-09	7.12E-09	7.12E-09
p238	8.31E-04	1.39E-03	2.11E-03	3.00E-03	4.08E-03	4.08E-03
p239	2.68E+00	3.26E+00	3.81E+00	4.31E+00	4.77E+00	4.77E+00
p240	1.41E-01	2.06E-01	2.78E-01	3.57E-01	4.40E-01	4.40E-01
p241	2.20E-02	3.86E-02	6.13E-02	9.03E-02	1.26E-01	1.26E-01
p242	3.96E-04	8.88E-04	1.70E-03	2.92E-03	4.66E-03	4.66E-03
p243	4.68E-08	1.12E-07	2.13E-07	3.66E-07	5.82E-07	5.58E-07
p244	9.57E-25	1.05E-23	7.98E-23	4.23E-22	1.78E-21	1.78E-21
p245	7.07E-31	8.01E-30	5.83E-29	3.09E-28	1.30E-27	1.27E-27
p246	1.53E-33	1.91E-32	1.51E-31	8.53E-31	3.77E-30	3.77E-30
an239	1.66E-15	3.95E-15	7.51E-15	1.28E-14	2.03E-14	1.99E-14
an240	7.15E-13	1.70E-12	3.23E-12	5.53E-12	8.74E-12	8.71E-12

1
0

sas2h: babcock wilcox 15x15, 3.00wC%, 20gud/mtu burn high temp
 power= 7.25mw, burnup= 2520.mwd, flux= 1.64E+13n/cm^2-sec
 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	200.0 d	240.0 d	280.0 d	320.0 d	320.0 d
an241	1.18E-04	2.65E-04	5.05E-04	8.64E-04	1.37E-03	1.37E-03
an242m	7.73E-07	2.10E-06	4.66E-06	9.01E-06	1.58E-05	1.58E-05
an242	1.36E-07	3.05E-07	5.80E-07	9.91E-07	1.57E-06	1.59E-06
an243	5.31E-06	1.56E-05	3.65E-05	7.37E-05	1.35E-04	1.35E-04
an244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an244	1.68E-09	5.17E-09	1.20E-08	2.42E-08	4.43E-08	4.33E-08
an245	6.30E-29	7.41E-28	5.34E-27	2.79E-26	1.16E-25	1.16E-25
an246	3.83E-36	4.77E-35	3.78E-34	2.13E-33	9.41E-33	9.41E-33
cn241	2.94E-17	1.27E-16	3.92E-16	9.86E-16	2.15E-15	2.15E-15
cn242	3.49E-06	9.65E-06	2.17E-05	4.26E-05	7.56E-05	7.56E-05
cn243	8.97E-09	3.20E-08	8.74E-08	2.00E-07	4.06E-07	4.06E-07
cn244	7.67E-08	2.87E-07	8.21E-07	1.96E-06	4.13E-06	4.13E-06
cn245	3.00E-10	1.42E-09	4.88E-09	1.36E-08	3.26E-08	3.26E-08
cn246	2.15E-12	1.23E-11	5.14E-11	1.69E-10	4.68E-10	4.68E-10
cn247	2.49E-15	1.83E-14	9.15E-14	3.53E-13	1.12E-12	1.12E-12
cn248	1.25E-17	1.17E-16	7.06E-16	3.19E-15	1.16E-14	1.16E-14
cn249	6.67E-23	7.20E-22	4.33E-21	1.95E-20	7.12E-20	5.83E-20
cn250	2.27E-27	2.66E-26	1.94E-25	1.02E-24	4.29E-24	4.29E-24
cn251	3.87E-35	6.50E-34	4.71E-33	2.48E-32	1.04E-31	4.85E-32
totals	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.94E+03
flux		1.66E+13	1.64E+13	1.64E+13	1.64E+13	1.64E+13

actinides page 8

```

0      1q array has    20 entries.
0      3q array has     1 entries.
0      3q array has     1 entries.
0      3q array has     1 entries.
0      4q array has     1 entries.
0      5q array has    12 entries.
1library information...
    
```

cross-section data taken from position number 3 of library on unit 33.

```

pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...
pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...
    
```

```

*****
*
*      prelim lwr origen-s binary working library--id = 1143
*      made from modified card-image origen-s libraries of scale 4.2
*      data from the light element, actinide, and fission product libraries
*      decay data, including gamma and total energy, are from endf/b-vi
*
*      neutron flux spectrum factors and cross sections were produced from
*      the 'presas2' case updating all nuclides on the scale 'burnup' library
*
*      fission product yields are from endf/b-v
*
*      photon libraries use an 18-energy-group structure
*      the photon data are from the master photon data base,
*      produced to include bremsstrahlung from u2 matrix
*
*      see information above this box (if present) for later updates
*
*****
    
```

```

0
0      .other identification and sizes of library.
0      data set name: ft33f001
0      2/16/1996 date library was produced
0      1697 total number of nuclides in library
0      689 number of light-element nuclides
0      129 number of actinide nuclides
0      879 number of fission product nuclides
0      7935 number of nonzero off-diagonal matrix elements
0
0
    
```

```

1 sas2n: babcock wilcox 15x15, 3.00MW, 20gwd/mtu burn high temp          page 9
  power= 7.25mw, burnup= 3480.mwd, flux= 1.62E+13n/cm^2-sec
  basis =
0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0 initial 360.0 d 400.0 d 440.0 d 480.0 d 480.0 d
0 productions 3.533429E+04 3.54952E+04 3.556331E+04 3.564504E+04 3.570724E+04 3.570788E+04
    
```

absorptions	2.863199E+04	2.887506E+04	2.911586E+04	2.934422E+04	2.956090E+04	2.957839E+04
k infinity	1.234084E+00	1.228033E+00	1.221441E+00	1.214721E+00	1.207921E+00	1.207227E+00
initial		360.0 d	400.0 d	440.0 d	480.0 d	480.0 d
actinide						
absorptions	2.742413E+04	2.760863E+04	2.778306E+04	2.794630E+04	2.809889E+04	2.809919E+04
non-actinide						
abs. fracs.	4.218566E-02	4.385899E-02	4.577571E-02	4.763854E-02	4.945773E-02	5.000957E-02

1 sas2h: babcock wilcox 15x15, 3.00w/o, 20gwd/mtu burn high temp actinides page 10
 0 power= 7.25mw, burnup= 3480.mwd, flux= 1.62E+13n/cm^2-sec

nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	360.0 d	400.0 d	440.0 d	480.0 d	480.0 d
he 4	1.11E-04	1.54E-04	2.11E-04	2.85E-04	3.80E-04	3.80E-04
th226	8.33E-20	1.07E-19	1.32E-19	1.60E-19	1.93E-19	1.93E-19
th227	1.89E-15	2.59E-15	3.44E-15	4.44E-15	5.60E-15	5.61E-15
th228	8.14E-11	1.08E-10	1.40E-10	1.79E-10	2.24E-10	2.24E-10
th229	3.61E-12	4.67E-12	5.90E-12	7.33E-12	8.96E-12	8.96E-12
th230	1.04E-06	1.15E-06	1.25E-06	1.35E-06	1.45E-06	1.45E-06
th231	1.09E-09	1.22E-09	1.31E-09	1.39E-09	1.48E-09	1.48E-09
th232	3.33E-08	4.08E-08	4.89E-08	5.77E-08	6.72E-08	6.72E-08
th233	1.53E-14	3.44E-14	4.12E-14	4.86E-14	5.66E-14	2.39E-14
th234	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08
pa231	1.35E-07	1.63E-07	1.93E-07	2.25E-07	2.58E-07	2.58E-07
pa232	1.03E-10	1.28E-10	1.51E-10	1.75E-10	2.01E-10	1.99E-10
pa233	2.31E-09	2.78E-09	3.23E-09	3.74E-09	4.26E-09	4.26E-09
pa234m	9.38E-13	9.38E-13	9.37E-13	9.37E-13	9.37E-13	9.36E-13
pa234	5.60E-13	5.99E-13	6.30E-13	6.63E-13	6.97E-13	6.84E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	8.07E-17	1.04E-16	1.28E-16	1.56E-16	1.87E-16	1.87E-16
u231	1.91E-15	2.42E-15	2.90E-15	3.46E-15	4.08E-15	4.07E-15
u232	2.52E-08	3.10E-08	3.78E-08	4.56E-08	5.45E-08	5.45E-08
u233	1.47E-06	1.63E-06	1.79E-06	1.94E-06	2.08E-06	2.08E-06
u234	4.41E-01	4.36E-01	4.32E-01	4.28E-01	4.24E-01	4.24E-01
u235	4.86E+01	4.74E+01	4.63E+01	4.52E+01	4.41E+01	4.41E+01
u236	2.22E+00	2.44E+00	2.64E+00	2.84E+00	3.04E+00	3.04E+00
u237	3.50E-03	3.80E-03	4.00E-03	4.19E-03	4.38E-03	4.37E-03
u238	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	2.76E-04	4.91E-04	4.90E-04	4.89E-04	4.89E-04	2.16E-04
u240	3.57E-32	1.28E-31	3.99E-31	1.11E-30	2.81E-30	2.81E-30
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	6.18E-10	8.11E-10	1.03E-09	1.27E-09	1.54E-09	1.54E-09
np236m	1.37E-09	1.72E-09	1.99E-09	2.27E-09	2.58E-09	2.52E-09
np236	4.92E-08	6.58E-08	8.50E-08	1.07E-07	1.32E-07	1.32E-07
np237	7.85E-02	9.22E-02	1.07E-01	1.22E-01	1.37E-01	1.37E-01
np238	9.37E-05	1.12E-04	1.30E-04	1.48E-04	1.67E-04	1.66E-04
np239	6.88E-02	7.08E-02	7.07E-02	7.06E-02	7.06E-02	7.05E-02
np240m	3.05E-34	1.09E-33	3.41E-33	9.49E-33	2.40E-32	2.40E-32
np240	9.34E-07	1.22E-06	1.21E-06	1.21E-06	1.21E-06	8.88E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	6.23E-08	8.25E-08	1.06E-07	1.32E-07	1.62E-07	1.62E-07
pu237	7.12E-09	8.37E-09	9.53E-09	1.06E-08	1.17E-08	1.17E-08
pu238	4.08E-03	5.37E-03	6.88E-03	8.60E-03	1.06E-02	1.06E-02
pu239	4.77E+00	5.23E+00	5.66E+00	6.05E+00	6.42E+00	6.42E+00
pu240	4.40E-01	5.27E-01	6.18E-01	7.11E-01	8.04E-01	8.04E-01
pu241	1.26E-01	1.63E-01	2.06E-01	2.55E-01	3.09E-01	3.09E-01
pu242	4.65E-03	6.93E-03	9.82E-03	1.34E-02	1.78E-02	1.78E-02
pu243	5.58E-07	8.97E-07	1.27E-06	1.73E-06	2.30E-06	2.16E-06
pu244	1.78E-21	6.36E-21	1.99E-20	5.54E-20	1.40E-19	1.40E-19
pu245	1.27E-27	4.58E-27	1.43E-26	3.98E-26	1.01E-25	9.75E-26

p266 3.77E-30 1.38E-29 4.48E-29 1.29E-28 3.34E-28 3.33E-28
 an239 1.99E-14 3.14E-14 4.43E-14 6.01E-14 7.91E-14 7.70E-14
 an240 8.71E-12 1.36E-11 1.91E-11 2.59E-11 3.42E-11 3.40E-11

1 sas2h: babcock wilcox 15x15, 3.00w/o, 20gwd/mtu burn high temp actinides page 11
 0 power= 7.25mw, burnup= 3480.mwd, flux= 1.62E+13n/cm**2-sec

nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	360.0 d	400.0 d	440.0 d	480.0 d	480.0 d
an241	1.37E-03	2.03E-03	2.87E-03	3.89E-03	5.12E-03	5.12E-03
an242m	1.58E-05	2.59E-05	3.89E-05	5.64E-05	7.87E-05	7.87E-05
an242	1.59E-06	2.31E-06	3.29E-06	4.42E-06	5.81E-06	5.70E-06
an243	1.39E-04	2.31E-04	3.70E-04	5.62E-04	8.20E-04	8.20E-04
an244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an244	4.33E-08	7.79E-08	1.29E-07	1.89E-07	2.76E-07	2.67E-07
an245	1.16E-25	4.20E-25	1.31E-24	3.59E-24	8.98E-24	8.98E-24
an246	9.41E-33	3.46E-32	1.12E-31	3.21E-31	8.34E-31	8.34E-31
cn241	2.19E-15	4.40E-15	8.06E-15	1.37E-14	2.20E-14	2.20E-14
cn242	7.56E-05	1.24E-04	1.91E-04	2.81E-04	3.96E-04	3.96E-04
cn243	4.06E-07	7.61E-07	1.31E-06	2.13E-06	3.29E-06	3.29E-06
cn244	4.13E-06	8.04E-06	1.49E-05	2.49E-05	3.92E-05	3.93E-05
cn245	3.26E-08	7.17E-08	1.43E-07	2.66E-07	4.64E-07	4.64E-07
cn246	4.68E-10	1.19E-09	2.56E-09	5.26E-09	1.01E-08	1.01E-08
cn247	1.12E-12	3.16E-12	7.86E-12	1.78E-11	3.73E-11	3.73E-11
cn248	1.16E-14	3.74E-14	1.09E-13	2.63E-13	6.06E-13	6.06E-13
cn249	5.83E-20	2.37E-19	6.63E-19	1.66E-18	3.83E-18	2.84E-18
cn250	4.29E-24	1.56E-23	4.89E-23	1.36E-22	3.44E-22	3.44E-22
cn251	4.89E-32	3.74E-31	1.17E-30	3.26E-30	8.24E-30	2.62E-30
totals	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.93E+03	1.93E+03
flux		1.62E+13	1.62E+13	1.62E+13	1.62E+13	1.61E-02

0 1q array has 20 entries.
 0 3q array has 1 entries.
 0 3q array has 1 entries.
 0 3q array has 1 entries.
 0 4q array has 1 entries.
 0 5q array has 12 entries.

11library information...

cross-section data taken from position number 4 of library on unit 33.

pass 1
 pass 0
 scale-system control module sas2 library
 used a time-dependent neutron spectrum, for each of the above passes
 pass 0 applies start-up fuel densities
 pass n applies mid time densities of nth library interval
 first library updated was...
 pass 1
 pass 0
 scale-system control module sas2 library
 used a time-dependent neutron spectrum, for each of the above passes
 pass 0 applies start-up fuel densities
 pass n applies mid time densities of nth library interval
 first library updated was...

```

*****
*
*      prelim lwf origins binary working library--id = 1143      *
*      made from modified card-image origins libraries of scale 4.2 *
*      data from the light element, actinide, and fission product libraries *
*      decay data, including gamma and total energy, are from endf/b-vi *
*
*****
  
```



```

*
* neutron flux spectrum factors and cross sections were produced from
* the 'presas2' case updating all nuclides on the scale 'burnup' library
*
* fission product yields are from endf/b-v
*
* photon libraries use an 18-energy-group structure
* the photon data are from the master photon data base,
* produced to include bremsstrahlung from uc2 matrix
*
* see information above this box (if present) for later updates
*
*****

```

```

0
0 .other identification and sizes of library.
0 data set name: ft33f001
0 2/16/1996 date library was produced
0 1697 total number of nuclides in library
0 689 number of light-element nuclides
0 129 number of actinide nuclides
0 879 number of fission product nuclides
0 7955 number of nonzero off-diagonal matrix elements
*****

```

```

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gud/mtu burn high temp          page 12
power= 7.25mw, burnup= 4640.mwd, flux= 1.60E+13n/cm^2-sec
basis =

```

(note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

	initial	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d
productions	3.597085E+04	3.603198E+04	3.607921E+04	3.611125E+04	3.612999E+04	3.613048E+04
absorptions	2.993967E+04	3.013748E+04	3.034138E+04	3.053502E+04	3.071900E+04	3.074160E+04
k infinity	1.201445E+00	1.195587E+00	1.189709E+00	1.182618E+00	1.176135E+00	1.175295E+00
	initial	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d
actinide absorptions	2.844444E+04	2.859273E+04	2.873273E+04	2.886341E+04	2.898521E+04	2.898562E+04
non-actinide abs. fracs.	4.994160E-02	5.125684E-02	5.301845E-02	5.474389E-02	5.644029E-02	5.712068E-02

```

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gud/mtu burn high temp          actinides          page 13
power= 7.25mw, burnup= 4640.mwd, flux= 1.60E+13n/cm^2-sec
nuclide concentrations, gram atoms
basis = single reactor assembly

```

	charge	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d
he 4	3.80E-04	5.02E-04	6.56E-04	8.48E-04	1.08E-03	1.08E-03
pb206	9.74E-18	1.41E-17	1.97E-17	2.70E-17	3.63E-17	3.63E-17
pb207	2.44E-14	3.30E-14	4.37E-14	5.67E-14	7.24E-14	7.24E-14
pb208	3.04E-11	4.02E-11	5.23E-11	6.71E-11	8.51E-11	8.51E-11
pb209	1.93E-18	2.40E-18	2.96E-18	3.61E-18	4.37E-18	4.37E-18
pb210	2.80E-15	3.55E-15	4.42E-15	5.42E-15	6.58E-15	6.58E-15
pb211	6.98E-18	8.69E-18	1.07E-17	1.29E-17	1.54E-17	1.54E-17
pb212	1.43E-13	1.77E-13	2.18E-13	2.68E-13	3.19E-13	3.19E-13
pb214	2.99E-19	3.47E-19	3.98E-19	4.52E-19	5.09E-19	4.97E-19
th226	1.93E-19	2.36E-19	2.82E-19	3.32E-19	3.88E-19	3.88E-19
th227	5.61E-15	6.95E-15	8.47E-15	1.02E-14	1.21E-14	1.21E-14
th228	2.24E-10	2.78E-10	3.42E-10	4.19E-10	5.01E-10	5.01E-10
th229	8.96E-12	1.08E-11	1.30E-11	1.54E-11	1.82E-11	1.82E-11
th230	1.45E-06	1.55E-06	1.64E-06	1.73E-06	1.81E-06	1.81E-06
th231	1.46E-09	1.60E-09	1.68E-09	1.75E-09	1.83E-09	1.80E-09
th232	6.72E-08	7.72E-08	8.79E-08	9.91E-08	1.11E-07	1.11E-07
th233	2.39E-14	6.67E-14	7.59E-14	8.56E-14	9.59E-14	3.05E-14

th234	2.78E-08	2.77E-08	2.77E-08	2.77E-08	2.77E-08	2.77E-08
pa231	2.58E-07	2.94E-07	3.31E-07	3.70E-07	4.10E-07	4.10E-07
pa232	1.99E-10	2.33E-10	2.63E-10	2.94E-10	3.26E-10	3.22E-10
pa233	4.26E-09	4.80E-09	5.37E-09	5.96E-09	6.56E-09	6.56E-09
pa234m	9.34E-13	9.34E-13	9.34E-13	9.34E-13	9.34E-13	9.34E-13
pa234	6.84E-13	7.41E-13	7.79E-13	8.18E-13	8.59E-13	8.32E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.87E-16	2.29E-16	2.73E-16	3.21E-16	3.76E-16	3.75E-16
u231	4.07E-15	4.96E-15	5.80E-15	6.73E-15	7.78E-15	7.74E-15
u232	5.45E-08	6.47E-08	7.63E-08	8.93E-08	1.04E-07	1.04E-07
u233	2.08E-06	2.23E-06	2.37E-06	2.50E-06	2.63E-06	2.63E-06
u234	4.24E-01	4.19E-01	4.15E-01	4.11E-01	4.07E-01	4.07E-01
u235	4.41E+01	4.30E+01	4.20E+01	4.10E+01	4.00E+01	4.00E+01
u236	3.04E+00	3.23E+00	3.41E+00	3.59E+00	3.77E+00	3.77E+00
u237	4.37E-03	4.63E-03	4.82E-03	4.99E-03	5.17E-03	5.15E-03
u238	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	2.16E-04	5.01E-04	5.01E-04	5.01E-04	5.01E-04	1.69E-04
u240	2.81E-30	6.61E-30	1.46E-29	3.05E-29	6.04E-29	6.04E-29
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.54E-09	1.86E-09	2.20E-09	2.56E-09	2.96E-09	2.96E-09
np236m	2.52E-09	2.99E-09	3.32E-09	3.69E-09	4.00E-09	3.93E-09
np236	1.32E-07	1.61E-07	1.94E-07	2.30E-07	2.70E-07	2.70E-07
np237	1.37E-01	1.53E-01	1.70E-01	1.87E-01	2.06E-01	2.05E-01
np238	1.66E-04	1.89E-04	2.10E-04	2.32E-04	2.54E-04	2.51E-04
np239	7.05E-02	7.29E-02	7.29E-02	7.29E-02	7.29E-02	7.21E-02
np240m	2.40E-32	5.64E-32	1.25E-31	2.60E-31	5.15E-31	5.15E-31
np240	8.88E-07	1.27E-06	1.27E-06	1.27E-06	1.27E-06	8.43E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.62E-07	1.96E-07	2.34E-07	2.76E-07	3.21E-07	3.21E-07
pu237	1.17E-08	1.31E-08	1.43E-08	1.55E-08	1.67E-08	1.67E-08
pu238	1.09E-02	1.28E-02	1.53E-02	1.80E-02	2.10E-02	2.10E-02
pu239	6.42E+00	6.79E+00	7.13E+00	7.44E+00	7.74E+00	7.74E+00
pu240	8.04E-01	9.03E-01	1.00E+00	1.10E+00	1.20E+00	1.20E+00

1
0

sas2h: babcock w/look 15x15, 3.00w%
 power= 7.25mw, burnup= 4640.mwd, flux= 1.60E+13n/cm²-sec
 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d
pu241	3.09E-01	3.62E-01	4.19E-01	4.82E-01	5.48E-01	5.48E-01
pu242	1.78E-02	2.29E-02	2.89E-02	3.57E-02	4.34E-02	4.34E-02
pu243	2.16E-06	3.04E-06	3.83E-06	4.73E-06	5.77E-06	5.29E-06
pu244	1.40E-19	3.29E-19	7.27E-19	1.52E-18	3.01E-18	3.01E-18
pu245	9.75E-26	2.36E-25	5.19E-25	1.08E-24	2.15E-24	2.06E-24
pu246	3.33E-28	7.96E-28	1.80E-27	3.82E-27	7.70E-27	7.69E-27
am239	7.70E-14	1.05E-13	1.31E-13	1.61E-13	1.95E-13	1.88E-13
am240	3.40E-11	4.53E-11	5.67E-11	6.96E-11	8.42E-11	8.35E-11
am241	5.12E-03	6.57E-03	8.21E-03	1.01E-02	1.22E-02	1.22E-02
am242m	7.87E-05	1.06E-04	1.39E-04	1.78E-04	2.23E-04	2.23E-04
am242	5.70E-06	7.41E-06	9.28E-06	1.14E-05	1.39E-05	1.34E-05
am243	8.20E-04	1.16E-03	1.60E-03	2.13E-03	2.79E-03	2.79E-03
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	2.67E-07	3.98E-07	5.47E-07	7.32E-07	9.58E-07	9.19E-07
am245	8.98E-24	2.12E-23	4.67E-23	9.69E-23	1.89E-22	1.89E-22
am246	8.34E-31	1.99E-30	4.49E-30	9.54E-30	1.92E-29	1.92E-29
cm241	2.20E-14	3.46E-14	5.15E-14	7.38E-14	1.02E-13	1.02E-13
cm242	3.96E-04	5.40E-04	7.15E-04	9.25E-04	1.17E-03	1.17E-03
cm243	3.29E-06	4.90E-06	7.04E-06	9.79E-06	1.32E-05	1.32E-05
cm244	3.93E-05	6.08E-05	9.09E-05	1.31E-04	1.85E-04	1.85E-04
cm245	4.64E-07	7.81E-07	1.26E-06	1.94E-06	2.91E-06	2.91E-06

cr246	1.01E-08	1.84E-08	3.20E-08	5.33E-08	8.58E-08	8.58E-08
cr247	3.73E-11	7.47E-11	1.41E-10	2.52E-10	4.34E-10	4.34E-10
cr248	6.06E-13	1.32E-12	2.71E-12	5.25E-12	9.70E-12	9.70E-12
cr249	2.84E-18	8.62E-18	1.76E-17	3.42E-17	6.33E-17	4.25E-17
cr250	3.44E-22	8.20E-22	1.82E-21	3.81E-21	7.57E-21	7.57E-21
cr251	2.62E-30	1.95E-29	4.34E-29	9.08E-29	1.81E-28	3.94E-29
totals	1.93E+03	1.93E+03	1.93E+03	1.93E+03	1.93E+03	1.93E+03
0 flux		1.60E+13	1.60E+13	1.60E+13	1.61E+13	1.61E-02
0	1q array has	20 entries.				
0	3q array has	1 entries.				
0	3q array has	1 entries.				
0	3q array has	1 entries.				
0	4q array has	1 entries.				
0	54q array has	12 entries.				

1 library information...

cross-section data taken from position number 5 of library on unit 33.

```

pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependent neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...
pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependent neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...

```

```

*****
*
*   prelim lwf origen-s binary working library--id = 1143
*   made from modified card-image origen-s libraries of scale 4.2
*   data from the light element, actinide, and fission product libraries
*   decay data, including gamma and total energy, are from endf/b-vi
*
*   neutron flux spectrum factors and cross sections were produced from
*   the 'presas2' case updating all nuclides on the scale 'burnup' library
*
*   fission product yields are from endf/b-v
*
*   photon libraries use an 18-energy-group structure
*   the photon data are from the master photon data base,
*   produced to include bremsstrahlung from uo2 matrix
*
*   see information above this box (if present) for later updates
*
*****

```

0
0
0
0
0

```

.other identification and sizes of library.
data set name: ft33f001
2/16/1996  date library was produced
1697     total number of nuclides in library
689     number of light-element nuclides
129     number of actinide nuclides
879     number of fission product nuclides

```

```

0          7935  number of nonzero off-diagonal matrix elements
0          *****
1 sas2h: babcock wilcox 15x15, 3.00wck, 20gud/mtu burn high temp           page 15
          power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm^2-sec
0          basis =
0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0          initial      680.1 d      720.1 d      760.1 d      800.1 d      800.1 d
productions 3.632766E+04  3.634378E+04  3.635084E+04  3.634718E+04  3.633388E+04  3.633488E+04
absorptions 3.099263E+04  3.115259E+04  3.132613E+04  3.149116E+04  3.164824E+04  3.167582E+04
k infinity  1.172139E+00  1.166637E+00  1.160400E+00  1.154208E+00  1.148054E+00  1.147086E+00
0          initial      680.1 d      720.1 d      760.1 d      800.1 d      800.1 d
actinide
absorptions 2.922103E+04  2.933933E+04  2.945092E+04  2.955483E+04  2.965138E+04  2.965189E+04
non-actinide
abs. frags. 5.716181E-02  5.820584E-02  5.986065E-02  6.148809E-02  6.309545E-02  6.389511E-02

```

```

1 sas2h: babcock wilcox 15x15, 3.00wck, 20gud/mtu burn high temp           actinides           page 16
          power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm^2-sec
0          nuclide concentrations, gram atoms
          basis = single reactor assembly

```

	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
he 4	1.08E-03	1.37E-03	1.72E-03	2.13E-03	2.61E-03	2.61E-03
pb206	3.63E-17	4.79E-17	6.21E-17	7.95E-17	1.00E-16	1.00E-16
pb207	7.24E-14	9.09E-14	1.13E-13	1.38E-13	1.67E-13	1.67E-13
pb208	8.51E-11	1.07E-10	1.32E-10	1.63E-10	1.99E-10	1.99E-10
pb209	4.37E-18	5.23E-18	6.24E-18	7.39E-18	8.69E-18	8.70E-18
pb210	6.58E-15	7.90E-15	9.39E-15	1.11E-14	1.30E-14	1.30E-14
pb211	1.54E-17	1.82E-17	2.12E-17	2.46E-17	2.83E-17	2.82E-17
pb212	3.19E-13	3.82E-13	4.53E-13	5.35E-13	6.27E-13	6.27E-13
pb214	4.97E-19	5.68E-19	6.30E-19	6.94E-19	7.61E-19	7.40E-19
th226	3.88E-19	4.60E-19	5.34E-19	6.15E-19	7.04E-19	7.03E-19
th227	1.21E-14	1.42E-14	1.66E-14	1.91E-14	2.19E-14	2.19E-14
th228	5.01E-10	5.99E-10	7.11E-10	8.39E-10	9.83E-10	9.83E-10
th229	1.82E-11	2.13E-11	2.48E-11	2.88E-11	3.33E-11	3.33E-11
th230	1.81E-06	1.89E-06	1.97E-06	2.04E-06	2.11E-06	2.11E-06
th231	1.80E-09	1.94E-09	2.01E-09	2.08E-09	2.14E-09	2.10E-09
th232	1.11E-07	1.23E-07	1.36E-07	1.49E-07	1.63E-07	1.63E-07
th233	3.05E-14	1.09E-13	1.20E-13	1.32E-13	1.45E-13	3.45E-14
th234	2.77E-08	2.77E-08	2.77E-08	2.77E-08	2.76E-08	2.76E-08
pa231	4.10E-07	4.52E-07	4.95E-07	5.39E-07	5.84E-07	5.84E-07
pa232	3.22E-10	3.65E-10	4.01E-10	4.37E-10	4.75E-10	4.67E-10
pa233	6.56E-09	7.18E-09	7.82E-09	8.47E-09	9.14E-09	9.14E-09
pa234m	9.34E-13	9.35E-13	9.35E-13	9.34E-13	9.34E-13	9.32E-13
pa234	8.32E-13	9.11E-13	9.56E-13	1.00E-12	1.05E-12	1.00E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	3.75E-16	4.46E-16	5.18E-16	5.98E-16	6.82E-16	6.81E-16
u231	7.74E-15	9.19E-15	1.05E-14	1.20E-14	1.36E-14	1.35E-14
u232	1.04E-07	1.20E-07	1.38E-07	1.58E-07	1.80E-07	1.80E-07
u233	2.63E-06	2.75E-06	2.87E-06	2.99E-06	3.10E-06	3.10E-06
u234	4.07E-01	4.03E-01	3.99E-01	3.95E-01	3.91E-01	3.91E-01
u235	4.00E+01	3.90E+01	3.81E+01	3.71E+01	3.62E+01	3.62E+01
u236	3.77E+00	3.94E+00	4.10E+00	4.27E+00	4.42E+00	4.42E+00
u237	5.15E-03	5.39E-03	5.56E-03	5.72E-03	5.89E-03	5.87E-03
u238	1.88E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03
u239	1.69E-04	5.11E-04	5.11E-04	5.12E-04	5.12E-04	1.31E-04
u240	6.04E-29	1.15E-28	2.10E-28	3.72E-28	6.39E-28	6.39E-28
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	2.96E-09	3.40E-09	3.86E-09	4.36E-09	4.87E-09	4.87E-09
np236m	3.93E-09	4.52E-09	4.91E-09	5.30E-09	5.70E-09	5.57E-09
np236	2.70E-07	3.15E-07	3.64E-07	4.17E-07	4.74E-07	4.74E-07

rp237	2.05E-01	2.23E-01	2.42E-01	2.61E-01	2.80E-01	2.80E-01
rp238	2.51E-04	2.79E-04	3.03E-04	3.27E-04	3.52E-04	3.49E-04
rp239	7.21E-02	7.37E-02	7.38E-02	7.39E-02	7.39E-02	7.36E-02
rp240m	5.15E-31	9.79E-31	1.79E-30	3.18E-30	5.45E-30	5.49E-30
rp240	8.43E-07	1.33E-06	1.33E-06	1.33E-06	1.34E-06	7.97E-07
rp241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
p.236	3.21E-07	3.72E-07	4.26E-07	4.84E-07	5.46E-07	5.46E-07
p.237	1.67E-08	1.82E-08	1.97E-08	2.11E-08	2.25E-08	2.24E-08
p.238	2.10E-02	2.44E-02	2.80E-02	3.20E-02	3.62E-02	3.62E-02
p.239	7.74E+00	8.03E+00	8.31E+00	8.56E+00	8.80E+00	8.80E+00
p.240	1.20E+00	1.30E+00	1.40E+00	1.50E+00	1.60E+00	1.60E+00

1 sas2: babcock wilcox 15x15, 3.00w%, 20gwi/mfu burn high temp
 0 power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm**2-sec

actinides page 17

nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
p.241	5.48E-01	6.10E-01	6.77E-01	7.46E-01	8.20E-01	8.20E-01
p.242	4.34E-02	5.20E-02	6.15E-02	7.20E-02	8.35E-02	8.35E-02
p.243	5.25E-06	7.04E-06	8.34E-06	9.77E-06	1.13E-05	1.02E-05
p.244	3.01E-18	5.72E-18	1.05E-17	1.85E-17	3.18E-17	3.18E-17
p.245	2.06E-24	4.07E-24	7.47E-24	1.33E-23	2.28E-23	2.16E-23
p.246	7.69E-27	1.48E-26	2.76E-26	4.95E-26	8.61E-26	8.60E-26
an239	1.88E-13	2.38E-13	2.80E-13	3.25E-13	3.74E-13	3.58E-13
an240	8.35E-11	1.03E-10	1.21E-10	1.41E-10	1.62E-10	1.60E-10
an241	1.22E-02	1.45E-02	1.70E-02	1.97E-02	2.26E-02	2.26E-02
an242m	2.23E-04	2.75E-04	3.33E-04	3.97E-04	4.66E-04	4.66E-04
an242	1.34E-05	1.63E-05	1.92E-05	2.23E-05	2.56E-05	2.48E-05
an243	2.75E-03	3.59E-03	4.54E-03	5.66E-03	6.94E-03	6.95E-03
an244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an244	9.19E-07	1.25E-06	1.59E-06	1.98E-06	2.43E-06	2.31E-06
an245	1.89E-22	3.61E-22	6.57E-22	1.15E-21	1.96E-21	1.96E-21
an246	1.92E-29	3.70E-29	6.88E-29	1.24E-28	2.15E-28	2.15E-28
cn241	1.02E-13	1.41E-13	1.88E-13	2.45E-13	3.13E-13	3.13E-13
cn242	1.17E-03	1.46E-03	1.78E-03	2.15E-03	2.56E-03	2.56E-03
cn243	1.32E-05	1.76E-05	2.25E-05	2.92E-05	3.66E-05	3.66E-05
cn244	1.85E-04	2.55E-04	3.45E-04	4.57E-04	5.95E-04	5.96E-04
cn245	2.91E-06	4.26E-06	6.09E-06	8.50E-06	1.16E-05	1.16E-05
cn246	8.58E-08	1.34E-07	2.04E-07	3.02E-07	4.38E-07	4.38E-07
cn247	4.34E-10	7.26E-10	1.17E-09	1.85E-09	2.82E-09	2.82E-09
cn248	9.70E-12	1.74E-11	3.01E-11	5.02E-11	8.15E-11	8.15E-11
cn249	4.25E-17	1.16E-16	2.01E-16	3.36E-16	5.47E-16	5.32E-16
cn250	7.57E-21	1.45E-20	2.68E-20	4.78E-20	8.22E-20	8.22E-20
cn251	3.94E-29	3.46E-28	6.39E-28	1.14E-27	1.96E-27	2.93E-28
totals	1.92E+03	1.93E+03	1.93E+03	1.93E+03	1.92E+03	1.92E+03
flux		1.60E+13	1.60E+13	1.60E+13	1.61E+13	1.61E+13

0 1q array has 20 entries.
 0 3q array has 1 entries.
 0 3q array has 1 entries.
 0 3q array has 1 entries.
 0 4q array has 1 entries.
 0 5q array has 12 entries.

1library information...

cross-section data taken from position number 6 of library on unit 33.

pass 1
 pass 0

scale-system control module sas2 library
 used a time-dependent neutron spectrum, for each of the above passes

pass 0 applies start-up fuel densities
 pass n applies mid time densities of nth library interval
 first library updated was...
 pass 1
 pass 0
 scale-system control module sas2 library
 used a time-dependent neutron spectrum, for each of the above passes
 pass 0 applies start-up fuel densities
 pass n applies mid time densities of nth library interval
 first library updated was...

```
*****
*
*      prelim lwr origin-s binary working library--id = 1143
*      made from modified card-image origin-s libraries of scale 4.2
*      data from the light element, actinide, and fission product libraries
*      decay data, including gamma and total energy, are from endf/b-vi
*
*      neutron flux spectrum factors and cross sections were produced from
*      the "presas2" case updating all nuclides on the scale "burnup" library
*
*      fission product yields are from endf/b-v
*
*      photon libraries use an 18-energy-group structure
*      the photon data are from the master photon data base,
*      produced to include bremsstrahlung from uo2 matrix
*
*      see information above this box (if present) for later updates
*
*****
```

```
0
0      .other identification and sizes of library.
0      data set name: ft33f001
0      2/16/1996 date library was produced
0      1697 total number of nuclides in library
0      689 number of light-element nuclides
0      129 number of actinide nuclides
0      879 number of fission product nuclides
0      7285 number of nonzero off-diagonal matrix elements
0
0 *****
```

```
1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp           page 18
power= 7.25mw, burnup= 6960.mwd, flux= 1.61E+13n/cm^2-sec
basis =
```

(note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

	initial	840.1 d	880.1 d	920.1 d	960.1 d	960.1 d
productions	3.648544E+04	3.646848E+04	3.644588E+04	3.641576E+04	3.637888E+04	3.638007E+04
absorptions	3.184782E+04	3.197600E+04	3.212433E+04	3.226626E+04	3.240135E+04	3.243368E+04
k infinity	1.146618E+00	1.140495E+00	1.134515E+00	1.128602E+00	1.122757E+00	1.121678E+00
actinide		initial	840.1 d	880.1 d	920.1 d	960.1 d
absorptions	2.980953E+04	2.990528E+04	2.999171E+04	3.007383E+04	3.014992E+04	3.015054E+04
non-actinide						
abs. fracs.	6.400120E-02	6.482118E-02	6.639504E-02	6.794798E-02	6.948555E-02	7.039404E-02

```
1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp           actinides           page 19
power= 7.25mw, burnup= 6960.mwd, flux= 1.61E+13n/cm^2-sec
nuclide concentrations, gram atoms
basis = single reactor assembly
charge 840.1 d 880.1 d 920.1 d 960.1 d 960.1 d
he 4 2.61E-03 3.17E-03 3.82E-03 4.57E-03 5.42E-03 5.42E-03
```

pb206	1.00E-16	1.25E-16	1.55E-16	1.90E-16	2.31E-16	2.31E-16
pb207	1.67E-13	2.01E-13	2.39E-13	2.82E-13	3.30E-13	3.30E-13
pb208	1.99E-10	2.40E-10	2.89E-10	3.45E-10	4.10E-10	4.10E-10
pb209	8.70E-18	1.02E-17	1.18E-17	1.37E-17	1.58E-17	1.59E-17
pb210	1.30E-14	1.51E-14	1.74E-14	2.00E-14	2.29E-14	2.29E-14
pb211	2.82E-17	3.22E-17	3.66E-17	4.12E-17	4.61E-17	4.61E-17
pb212	6.27E-13	7.31E-13	8.47E-13	9.78E-13	1.12E-12	1.12E-12
pb214	7.40E-19	8.30E-19	9.01E-19	9.73E-19	1.05E-18	1.02E-18
th226	7.03E-19	8.15E-19	9.27E-19	1.05E-18	1.18E-18	1.18E-18
th227	2.19E-14	2.50E-14	2.82E-14	3.17E-14	3.55E-14	3.55E-14
th228	9.83E-10	1.15E-09	1.33E-09	1.53E-09	1.76E-09	1.76E-09
th229	3.33E-11	3.84E-11	4.42E-11	5.06E-11	5.78E-11	5.78E-11
th230	2.11E-06	2.18E-06	2.24E-06	2.30E-06	2.36E-06	2.36E-06
th231	2.10E-09	2.24E-09	2.31E-09	2.36E-09	2.42E-09	2.37E-09
th232	1.63E-07	1.78E-07	1.92E-07	2.06E-07	2.23E-07	2.23E-07
th233	3.45E-14	1.60E-13	1.74E-13	1.89E-13	2.03E-13	3.63E-14
th234	2.76E-08	2.76E-08	2.76E-08	2.76E-08	2.76E-08	2.76E-08
pa231	5.84E-07	6.31E-07	6.79E-07	7.27E-07	7.76E-07	7.76E-07
pa232	4.67E-10	5.20E-10	5.60E-10	6.01E-10	6.43E-10	6.30E-10
pa233	9.14E-09	9.82E-09	1.05E-08	1.12E-08	1.19E-08	1.19E-08
pa234m	9.32E-13	9.34E-13	9.33E-13	9.33E-13	9.33E-13	9.30E-13
pa234	1.00E-12	1.11E-12	1.16E-12	1.21E-12	1.26E-12	1.18E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	6.81E-16	7.89E-16	8.98E-16	1.02E-15	1.14E-15	1.14E-15
u231	1.35E-14	1.57E-14	1.77E-14	1.99E-14	2.22E-14	2.21E-14
u232	1.80E-07	2.04E-07	2.30E-07	2.58E-07	2.89E-07	2.89E-07
u233	3.10E-06	3.21E-06	3.32E-06	3.42E-06	3.52E-06	3.52E-06
u234	3.91E-01	3.87E-01	3.83E-01	3.79E-01	3.75E-01	3.75E-01
u235	3.62E+01	3.53E+01	3.45E+01	3.36E+01	3.28E+01	3.28E+01
u236	4.42E+00	4.57E+00	4.72E+00	4.87E+00	5.01E+00	5.01E+00
u237	5.87E-03	6.08E-03	6.24E-03	6.39E-03	6.54E-03	6.52E-03
u238	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03
u239	1.31E-04	5.21E-04	5.21E-04	5.22E-04	5.23E-04	1.02E-04
u240	6.39E-28	1.07E-27	1.74E-27	2.77E-27	4.32E-27	4.32E-27
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	4.87E-09	5.44E-09	6.04E-09	6.66E-09	7.30E-09	7.30E-09
np236m	5.57E-09	6.29E-09	6.73E-09	7.17E-09	7.62E-09	7.41E-09
np236	4.74E-07	5.37E-07	6.04E-07	6.76E-07	7.53E-07	7.53E-07
np237	2.80E-01	3.00E-01	3.20E-01	3.40E-01	3.61E-01	3.61E-01
np238	3.49E-04	3.81E-04	4.07E-04	4.34E-04	4.61E-04	4.59E-04
np239	7.36E-02	7.52E-02	7.53E-02	7.54E-02	7.55E-02	7.51E-02
np240m	5.45E-30	9.10E-30	1.48E-29	2.36E-29	3.69E-29	3.69E-29
np240	7.97E-07	1.39E-06	1.39E-06	1.39E-06	1.40E-06	7.51E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
p236	5.46E-07	6.19E-07	6.87E-07	7.63E-07	8.43E-07	8.43E-07
p237	2.24E-08	2.42E-08	2.59E-08	2.78E-08	2.92E-08	2.92E-08
p238	3.62E-02	4.09E-02	4.59E-02	5.12E-02	5.69E-02	5.69E-02
p239	8.80E+00	9.04E+00	9.26E+00	9.47E+00	9.66E+00	9.66E+00
p240	1.60E+00	1.71E+00	1.81E+00	1.91E+00	2.01E+00	2.01E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gpd/mtu burn high temp
 power= 7.25mw, burnup= 6960.mwd, flux= 1.61E+13n/cm^2-sec
 0 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	840.1 d	880.1 d	920.1 d	960.1 d	960.1 d
p241	8.20E-01	8.87E-01	9.57E-01	1.03E+00	1.11E+00	1.11E+00
p242	8.35E-02	9.58E-02	1.09E-01	1.23E-01	1.39E-01	1.39E-01
p243	1.02E-05	1.32E-05	1.50E-05	1.70E-05	1.92E-05	1.69E-05
p244	3.18E-17	5.31E-17	8.66E-17	1.38E-16	2.15E-16	2.15E-16
p245	2.16E-23	3.80E-23	6.20E-23	9.90E-23	1.59E-22	1.46E-22

pl246	8.60E-26	1.45E-25	2.40E-25	3.87E-25	6.10E-25	6.09E-25
am239	3.58E-13	4.36E-13	4.93E-13	5.53E-13	6.17E-13	5.85E-13
am240	1.60E-10	1.89E-10	2.14E-10	2.40E-10	2.67E-10	2.64E-10
am241	2.26E-02	2.58E-02	2.91E-02	3.26E-02	3.63E-02	3.63E-02
am242m	4.69E-04	5.46E-04	6.30E-04	7.21E-04	8.18E-04	8.18E-04
am242	2.48E-05	2.91E-05	3.29E-05	3.70E-05	4.12E-05	3.96E-05
am243	6.93E-03	8.44E-03	1.01E-02	1.21E-02	1.42E-02	1.42E-02
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	2.31E-06	2.99E-06	3.60E-06	4.29E-06	5.07E-06	4.76E-06
am245	1.96E-21	3.27E-21	5.31E-21	8.40E-21	1.30E-20	1.30E-20
am246	2.15E-28	3.63E-28	5.99E-28	9.66E-28	1.52E-27	1.52E-27
cm241	3.13E-13	4.00E-13	4.99E-13	6.12E-13	7.40E-13	7.40E-13
cm242	2.56E-03	3.01E-03	3.50E-03	4.04E-03	4.62E-03	4.62E-03
cm243	3.66E-05	4.54E-05	5.55E-05	6.70E-05	8.01E-05	8.01E-05
cm244	5.96E-04	7.66E-04	9.72E-04	1.22E-03	1.51E-03	1.51E-03
cm245	1.16E-05	1.57E-05	2.06E-05	2.72E-05	3.50E-05	3.50E-05
cm246	4.38E-07	6.24E-07	8.72E-07	1.20E-06	1.62E-06	1.62E-06
cm247	2.82E-09	4.29E-09	6.25E-09	9.01E-09	1.28E-08	1.28E-08
cm248	8.15E-11	1.30E-10	2.02E-10	3.06E-10	4.56E-10	4.56E-10
cm249	3.32E-16	8.88E-16	1.38E-15	2.10E-15	3.14E-15	1.73E-15
cm250	8.22E-20	1.39E-19	2.28E-19	3.66E-19	5.72E-19	5.72E-19
cm251	2.93E-28	3.31E-27	5.44E-27	8.73E-27	1.37E-26	1.40E-27
totals	1.92E+03	1.92E+03	1.92E+03	1.92E+03	1.92E+03	1.92E+03
flux		1.60E+13	1.61E+13	1.61E+13	1.61E+13	1.61E+02

0 1q array has 20 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 4q array has 1 entries.
0 5q array has 12 entries.
1library information...

cross-section data taken from position number 7 of library on unit 33.

```

pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
pass 0 applies start-up fuel densities
pass n applies mid time densities of nth library interval
first library updated was...
pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependant neutron spectrum, for each of the above passes
pass 0 applies start-up fuel densities
pass n applies mid time densities of nth library interval
first library updated was...
*****
*
*      prelim lwr origen-s binary working library--id = 1143
*      made from modified card-image origen-s libraries of scale 4.2
*      data from the light element, actinide, and fission product libraries
*      decay data, including gamma and total energy, are from endf/b-v
*
*      neutron flux spectrum factors and cross sections were produced from
*      the "presas2" case updating all nuclides on the scale "burnup" library
*
*      fission product yields are from endf/b-v
*

```



```

*          photon libraries use an 18-energy-group structure          *
*          the photon data are from the master photon data base,    *
*          produced to include bremsstrahlung from uc2 matrix       *
*          *
*          see information above this box (if present) for later updates *
*          *
*****

```

```

0          .other identification and sizes of library.
0          data set name: ft33f001
0          2/16/1996 date library was produced
0          1697 total number of nuclides in library
0          689 number of light-element nuclides
0          129 number of actinide nuclides
0          879 number of fission product nuclides
0          7985 number of nonzero off-diagonal matrix elements
*****

```

```

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp          page 21
power= 7.25mw, burnup= 8120.mwd, flux= 1.62E+13n/cm**2-sec
basis =

```

(note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

	initial	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
productions	3.649633E+04	3.645478E+04	3.641009E+04	3.636028E+04	3.630584E+04	3.630727E+04
absorptions	3.254830E+04	3.264978E+04	3.277802E+04	3.290054E+04	3.301764E+04	3.305464E+04
k infinity	1.121298E+00	1.116539E+00	1.110808E+00	1.105157E+00	1.099589E+00	1.098402E+00
	initial	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
actinide						
absorptions	3.025247E+04	3.052627E+04	3.089594E+04	3.046046E+04	3.052008E+04	3.052078E+04
non-actinide						
abs. fracs.	7.053602E-02	7.116461E-02	7.267308E-02	7.416546E-02	7.564402E-02	7.665670E-02

```

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp          actinides          page 22
power= 7.25mw, burnup= 8120.mwd, flux= 1.62E+13n/cm**2-sec
nuclide concentrations, gram atoms
basis = single reactor assembly

```

	change	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
he 4	5.42E-03	6.39E-03	7.47E-03	8.68E-03	1.00E-02	1.00E-02
pb206	2.31E-16	2.78E-16	3.32E-16	3.95E-16	4.66E-16	4.67E-16
pb207	3.30E-13	3.84E-13	4.44E-13	5.11E-13	5.84E-13	5.84E-13
pb208	4.10E-10	4.84E-10	5.69E-10	6.65E-10	7.74E-10	7.74E-10
pb209	1.59E-17	1.81E-17	2.08E-17	2.37E-17	2.69E-17	2.71E-17
pb210	2.29E-14	2.60E-14	2.95E-14	3.33E-14	3.74E-14	3.74E-14
pb211	4.61E-17	5.15E-17	5.71E-17	6.31E-17	6.95E-17	6.94E-17
pb212	1.12E-12	1.28E-12	1.46E-12	1.66E-12	1.87E-12	1.87E-12
pb214	1.02E-18	1.12E-18	1.20E-18	1.28E-18	1.36E-18	1.32E-18
ra222	2.43E-20	2.74E-20	3.07E-20	3.42E-20	3.79E-20	3.80E-20
ra223	2.11E-14	2.35E-14	2.60E-14	2.88E-14	3.17E-14	3.17E-14
ra224	9.26E-12	1.06E-11	1.20E-11	1.37E-11	1.54E-11	1.54E-11
ra225	1.72E-15	1.96E-15	2.26E-15	2.57E-15	2.92E-15	2.91E-15
ra226	3.29E-11	3.53E-11	3.77E-11	4.02E-11	4.28E-11	4.28E-11
ra228	9.78E-18	1.09E-17	1.21E-17	1.33E-17	1.47E-17	1.47E-17
th226	1.18E-18	1.34E-18	1.50E-18	1.67E-18	1.85E-18	1.85E-18
th227	3.55E-14	3.95E-14	4.38E-14	4.83E-14	5.31E-14	5.31E-14
th228	1.78E-09	2.01E-09	2.25E-09	2.59E-09	2.93E-09	2.93E-09
th229	5.78E-11	6.59E-11	7.50E-11	8.51E-11	9.63E-11	9.63E-11
th230	2.36E-06	2.41E-06	2.46E-06	2.51E-06	2.56E-06	2.56E-06
th231	2.37E-09	2.51E-09	2.56E-09	2.61E-09	2.66E-09	2.59E-09
th232	2.23E-07	2.39E-07	2.56E-07	2.73E-07	2.90E-07	2.90E-07
th233	3.63E-14	2.21E-13	2.36E-13	2.53E-13	2.69E-13	3.61E-14

th234	2.76E-08	2.76E-08	2.76E-08	2.75E-08	2.75E-08	2.75E-08
pa231	7.76E-07	8.27E-07	8.77E-07	9.29E-07	9.80E-07	9.80E-07
pa232	6.30E-10	6.93E-10	7.37E-10	7.82E-10	8.27E-10	8.06E-10
pa233	1.19E-08	1.27E-08	1.34E-08	1.42E-08	1.49E-08	1.49E-08
pa234m	9.30E-13	9.32E-13	9.32E-13	9.32E-13	9.31E-13	9.28E-13
pa234	1.18E-12	1.33E-12	1.38E-12	1.44E-12	1.50E-12	1.38E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.14E-15	1.30E-15	1.45E-15	1.62E-15	1.79E-15	1.79E-15
u231	2.21E-14	2.52E-14	2.80E-14	3.10E-14	3.42E-14	3.39E-14
u232	2.89E-07	3.22E-07	3.58E-07	3.96E-07	4.37E-07	4.37E-07
u233	3.52E-06	3.61E-06	3.70E-06	3.79E-06	3.87E-06	3.87E-06
u234	3.75E-01	3.71E-01	3.67E-01	3.63E-01	3.59E-01	3.59E-01
u235	3.28E+01	3.20E+01	3.12E+01	3.04E+01	2.97E+01	2.97E+01
u236	5.01E+00	5.14E+00	5.27E+00	5.40E+00	5.53E+00	5.53E+00
u237	6.52E-03	6.71E-03	6.86E-03	7.00E-03	7.14E-03	7.11E-03
u238	1.87E+03	1.87E+03	1.87E+03	1.86E+03	1.86E+03	1.86E+03
u239	1.02E-04	5.30E-04	5.31E-04	5.32E-04	5.34E-04	7.90E-05
u240	4.32E-27	6.61E-27	9.94E-27	1.47E-26	2.14E-26	2.14E-26
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	7.30E-09	7.99E-09	8.71E-09	9.45E-09	1.02E-08	1.02E-08
np236m	7.41E-09	8.28E-09	8.76E-09	9.25E-09	9.74E-09	9.42E-09
np236	7.53E-07	8.34E-07	9.24E-07	1.02E-06	1.12E-06	1.12E-06
np237	3.61E-01	3.81E-01	4.03E-01	4.24E-01	4.46E-01	4.46E-01
np238	4.59E-04	4.92E-04	5.21E-04	5.50E-04	5.79E-04	5.70E-04
np239	7.51E-02	7.66E-02	7.67E-02	7.69E-02	7.70E-02	7.65E-02
np240m	3.69E-29	5.64E-29	8.48E-29	1.24E-28	1.83E-28	1.83E-28
np240	7.51E-07	1.44E-06	1.44E-06	1.43E-06	1.46E-06	7.06E-07

1 sas2h: babcock wilcox 15x15, 3.00w4, 20gud/mtu burn high temp actinides page 23
 0 power= 7.25mw, burnup= 8120.mwd, flux= 1.62E+13n/cm^2-sec

nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	8.43E-07	9.30E-07	1.02E-06	1.11E-06	1.21E-06	1.21E-06
pu237	2.92E-08	3.13E-08	3.33E-08	3.53E-08	3.73E-08	3.73E-08
pu238	5.69E-02	6.29E-02	6.94E-02	7.62E-02	8.34E-02	8.34E-02
pu239	9.66E+00	9.86E+00	1.00E+01	1.02E+01	1.04E+01	1.04E+01
pu240	2.01E+00	2.11E+00	2.22E+00	2.31E+00	2.41E+00	2.41E+00
pu241	1.11E+00	1.17E+00	1.25E+00	1.32E+00	1.40E+00	1.40E+00
pu242	1.39E-01	1.55E-01	1.72E-01	1.90E-01	2.09E-01	2.09E-01
pu243	1.69E-05	2.14E-05	2.40E-05	2.66E-05	2.93E-05	2.52E-05
pu244	2.15E-16	3.29E-16	4.95E-16	7.33E-16	1.07E-15	1.07E-15
pu245	1.46E-22	2.37E-22	3.57E-22	5.30E-22	7.75E-22	7.21E-22
pu246	6.09E-25	9.42E-25	1.43E-24	2.15E-24	3.16E-24	3.15E-24
am239	5.85E-13	6.94E-13	7.68E-13	8.42E-13	9.19E-13	8.63E-13
am240	2.64E-10	3.02E-10	3.33E-10	3.66E-10	3.98E-10	3.92E-10
am241	3.63E-02	4.01E-02	4.41E-02	4.82E-02	5.25E-02	5.25E-02
am242m	8.18E-04	9.20E-04	1.03E-03	1.14E-03	1.26E-03	1.26E-03
am242	3.96E-05	4.56E-05	5.02E-05	5.51E-05	6.01E-05	5.74E-05
am243	1.42E-02	1.66E-02	1.93E-02	2.22E-02	2.55E-02	2.55E-02
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	4.76E-06	5.99E-06	6.97E-06	8.05E-06	9.24E-06	8.58E-06
am245	1.30E-20	1.98E-20	2.97E-20	4.36E-20	6.30E-20	6.30E-20
am246	1.52E-27	2.36E-27	3.58E-27	5.34E-27	7.90E-27	7.89E-27
cm241	7.40E-13	8.97E-13	1.07E-12	1.26E-12	1.47E-12	1.47E-12
cm242	4.62E-03	5.25E-03	5.91E-03	6.62E-03	7.37E-03	7.37E-03
cm243	8.01E-05	9.48E-05	1.11E-04	1.29E-04	1.49E-04	1.49E-04
cm244	1.51E-03	1.85E-03	2.25E-03	2.72E-03	3.25E-03	3.25E-03
cm245	3.50E-05	4.47E-05	5.64E-05	7.03E-05	8.69E-05	8.69E-05

cn246	1.62E-06	2.17E-06	2.86E-06	3.74E-06	4.82E-06	4.82E-06
cn247	1.28E-08	1.79E-08	2.46E-08	3.35E-08	4.49E-08	4.49E-08
cn248	4.56E-10	6.70E-10	9.67E-10	1.37E-09	1.93E-09	1.93E-09
cn249	1.73E-15	4.69E-15	6.78E-15	9.67E-15	1.36E-14	6.73E-15
cn250	5.72E-19	8.83E-19	1.34E-18	1.99E-18	2.92E-18	2.92E-18
cn251	1.40E-27	2.12E-26	3.22E-26	4.81E-26	7.06E-26	4.90E-27
totals	1.92E+03	1.92E+03	1.92E+03	1.92E+03	1.91E+03	1.91E+03
0 flux		1.61E+13	1.61E+13	1.62E+13	1.62E+13	1.62E+02

- 0 1q array has 20 entries.
- 0 3q array has 1 entries.
- 0 3q array has 1 entries.
- 0 3q array has 1 entries.
- 0 4q array has 1 entries.
- 0 5q array has 12 entries.

1library information...

cross-section data taken from position number 1 of library on unit 15.

pass 8
pass 1
pass 0

scale-system control module sas2 library

used a time-dependent neutron spectrum, for each of the above passes

pass 0 applies start-up fuel densities

pass n applies mid time densities of nth library interval

first library updated was...

pass 1
pass 0

scale-system control module sas2 library

used a time-dependent neutron spectrum, for each of the above passes

pass 0 applies start-up fuel densities

pass n applies mid time densities of nth library interval

first library updated was...

```
*****
*
*      prelim lwr origen-s binary working library-id = 1143
*      made from modified card-image origen-s libraries of scale 4.2
*      data from the light element, actinide, and fission product libraries
*      decay data, including gamma and total energy, are from endf/b-vi
*
*      neutron flux spectrum factors and cross sections were produced from
*      the 'press2' case updating all nuclides on the scale 'burnup' library
*
*      fission product yields are from endf/b-v
*
*      photon libraries use an 18-energy-group structure
*      the photon data are from the master photon data base,
*      produced to include bremsstrahlung from uo2 matrix
*
*      see information above this box (if present) for later updates
*
*****
```

- 0
- 0
- 0
- 0
- 0

.other identification and sizes of library.

data set name: ft15f001
2/16/1996 date library was produced
1697 total number of nuclides in library
689 number of light-element nuclides
129 number of actinide nuclides

0 879 number of fission product nuclides
 0 7985 number of nonzero off-diagonal matrix elements
 1 *****
 1 sas2h: babcock wilcox 15x15, 3.00w%₂, 20gud/mtu burn high temp page 24
 power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 basis =

0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

	initial	1160.2 d	1200.2 d	1240.2 d	1280.2 d
productions	3.63987E+04	3.633892E+04	3.627806E+04	3.621389E+04	3.614675E+04
absorptions	3.312836E+04	3.320723E+04	3.331886E+04	3.342576E+04	3.352825E+04
k infinity	1.098718E+00	1.094307E+00	1.088814E+00	1.083413E+00	1.078099E+00
actinide					
absorptions	3.058359E+04	3.064127E+04	3.069584E+04	3.074624E+04	3.079265E+04
non-actinide					
abs. frags.	7.681549E-02	7.727140E-02	7.872462E-02	8.016324E-02	8.159089E-02

1 sas2h: babcock wilcox 15x15, 3.00w%₂, 20gud/mtu burn high temp actinides page 25
 power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	1160.2 d	1200.2 d	1240.2 d	1280.2 d
he 4	1.00E-02	1.15E-02	1.31E-02	1.49E-02	1.69E-02
pb206	4.67E-16	5.48E-16	6.40E-16	7.44E-16	8.60E-16
pb207	5.84E-13	6.65E-13	7.53E-13	8.49E-13	9.54E-13
pb208	7.74E-10	8.97E-10	1.03E-09	1.19E-09	1.36E-09
pb209	2.71E-17	3.04E-17	3.43E-17	3.85E-17	4.32E-17
pb210	3.74E-14	4.19E-14	4.67E-14	5.20E-14	5.77E-14
pb211	6.94E-17	7.62E-17	8.32E-17	9.06E-17	9.84E-17
pb212	1.87E-12	2.10E-12	2.35E-12	2.63E-12	2.93E-12
pb214	1.32E-18	1.45E-18	1.53E-18	1.62E-18	1.70E-18
ra222	3.80E-20	4.23E-20	4.68E-20	5.14E-20	5.64E-20
ra223	3.17E-14	3.47E-14	3.80E-14	4.13E-14	4.49E-14
ra224	1.54E-11	1.73E-11	1.94E-11	2.17E-11	2.42E-11
ra225	2.91E-15	3.25E-15	3.71E-15	4.17E-15	4.67E-15
ra226	4.28E-11	4.54E-11	4.80E-11	5.07E-11	5.34E-11
ra228	1.47E-17	1.61E-17	1.76E-17	1.91E-17	2.08E-17
th226	1.85E-18	2.06E-18	2.28E-18	2.51E-18	2.75E-18
th227	5.31E-14	5.81E-14	6.34E-14	6.90E-14	7.48E-14
th228	2.93E-09	3.25E-09	3.69E-09	4.12E-09	4.59E-09
th229	9.63E-11	1.09E-10	1.23E-10	1.38E-10	1.55E-10
th230	2.56E-06	2.60E-06	2.64E-06	2.68E-06	2.71E-06
th231	2.59E-09	2.74E-09	2.78E-09	2.83E-09	2.87E-09
th232	2.90E-07	3.08E-07	3.26E-07	3.44E-07	3.63E-07
th233	3.61E-14	2.89E-13	3.07E-13	3.25E-13	3.44E-13
th234	2.75E-08	2.75E-08	2.75E-08	2.75E-08	2.75E-08
pa231	9.80E-07	1.03E-06	1.09E-06	1.14E-06	1.19E-06
pa232	8.08E-10	8.81E-10	9.28E-10	9.76E-10	1.02E-09
pa233	1.49E-08	1.57E-08	1.64E-08	1.72E-08	1.80E-08
pa234m	9.28E-13	9.31E-13	9.31E-13	9.30E-13	9.30E-13
pa234	1.38E-12	1.57E-12	1.63E-12	1.69E-12	1.75E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.79E-15	2.00E-15	2.21E-15	2.43E-15	2.67E-15
u231	3.39E-14	3.82E-14	4.20E-14	4.60E-14	5.02E-14
u232	4.37E-07	4.81E-07	5.27E-07	5.77E-07	6.29E-07
u233	3.87E-06	3.95E-06	4.03E-06	4.11E-06	4.18E-06
u234	3.59E-01	3.55E-01	3.52E-01	3.48E-01	3.44E-01
u235	2.97E+01	2.89E+01	2.82E+01	2.75E+01	2.68E+01
u236	5.53E+00	5.65E+00	5.76E+00	5.88E+00	5.99E+00
u237	7.11E-03	7.30E-03	7.43E-03	7.57E-03	7.70E-03

u238	1.86E+03	1.86E+03	1.86E+03	1.86E+03	1.86E+03
u239	7.90E-05	5.40E-04	5.41E-04	5.43E-04	5.44E-04
u240	2.14E-26	3.08E-26	4.37E-26	6.13E-26	8.49E-26
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.02E-08	1.10E-08	1.19E-08	1.27E-08	1.36E-08
np236m	9.42E-09	1.04E-08	1.10E-08	1.15E-08	1.20E-08
np236	1.12E-06	1.22E-06	1.33E-06	1.45E-06	1.57E-06
np237	4.46E-01	4.67E-01	4.89E-01	5.11E-01	5.33E-01
np238	5.70E-04	6.12E-04	6.42E-04	6.73E-04	7.04E-04
np239	7.65E-02	7.80E-02	7.82E-02	7.83E-02	7.85E-02
np240m	1.83E-28	2.63E-28	3.73E-28	5.23E-28	7.25E-28
np240	7.06E-07	1.49E-06	1.50E-06	1.51E-06	1.52E-06

1 sas2h: babcock wilcox 15x15, 3.00w%, 20gcl/mtu burn high temp actinides page 26
 power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm^2-sec

0 nuclide concentrations, gram atoms
 basis = single reactor assembly

	charge	1160.2 d	1200.2 d	1240.2 d	1280.2 d
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
p236	1.21E-06	1.32E-06	1.43E-06	1.54E-06	1.66E-06
p237	3.73E-08	3.97E-08	4.21E-08	4.45E-08	4.69E-08
p238	8.34E-02	9.10E-02	9.91E-02	1.07E-01	1.16E-01
p239	1.04E+01	1.05E+01	1.07E+01	1.08E+01	1.09E+01
p240	2.41E+00	2.51E+00	2.61E+00	2.71E+00	2.80E+00
p241	1.40E+00	1.46E+00	1.53E+00	1.61E+00	1.68E+00
p242	2.09E-01	2.28E-01	2.49E-01	2.70E-01	2.93E-01
p243	2.52E-05	3.21E-05	3.51E-05	3.82E-05	4.15E-05
p244	1.07E-15	1.54E-15	2.18E-15	3.05E-15	4.23E-15
p245	7.21E-22	1.12E-21	1.59E-21	2.23E-21	3.10E-21
p246	3.15E-24	4.58E-24	6.58E-24	9.31E-24	1.30E-23
am239	8.63E-13	1.01E-12	1.10E-12	1.18E-12	1.27E-12
am240	3.92E-10	4.39E-10	4.75E-10	5.12E-10	5.51E-10
am241	5.25E-02	5.69E-02	6.14E-02	6.61E-02	7.08E-02
am242m	1.26E-03	1.39E-03	1.51E-03	1.65E-03	1.78E-03
am242	5.74E-05	6.51E-05	7.04E-05	7.59E-05	8.16E-05
am243	2.55E-02	2.90E-02	3.28E-02	3.70E-02	4.15E-02
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	8.58E-06	1.06E-05	1.20E-05	1.36E-05	1.53E-05
am245	6.30E-20	9.02E-20	1.27E-19	1.77E-19	2.44E-19
am246	7.89E-27	1.15E-26	1.64E-26	2.33E-26	3.26E-26
cm241	1.47E-12	1.72E-12	1.98E-12	2.26E-12	2.57E-12
cm242	7.37E-03	8.15E-03	8.98E-03	9.84E-03	1.07E-02
cm243	1.69E-04	1.71E-04	1.95E-04	2.21E-04	2.48E-04
cm244	3.25E-03	3.86E-03	4.55E-03	5.33E-03	6.20E-03
cm245	8.69E-05	1.07E-04	1.30E-04	1.56E-04	1.87E-04
cm246	4.82E-06	6.16E-06	7.80E-06	9.79E-06	1.22E-05
cm247	4.49E-08	5.97E-08	7.84E-08	1.02E-07	1.31E-07
cm248	1.93E-09	2.67E-09	3.66E-09	4.95E-09	6.62E-09
cm249	6.75E-15	1.91E-14	2.62E-14	3.56E-14	4.77E-14
cm250	2.92E-18	4.23E-18	6.05E-18	8.54E-18	1.19E-17
cm251	4.90E-27	1.08E-25	1.47E-25	2.08E-25	2.91E-25
bk249	1.62E-11	2.33E-11	3.28E-11	4.57E-11	6.28E-11
bk250	4.54E-15	8.26E-15	1.17E-14	1.63E-14	2.25E-14
bk251	3.75E-20	1.19E-19	1.69E-19	2.34E-19	3.26E-19
totals	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03
flux		1.62E+13	1.63E+13	1.63E+13	1.64E+13

0 .results on logical unit no. 71, position 1, for time step 4, subcase 9. (run position 1, case position 1)
 title: sas2h: babcock wilcox 15x15, 3.00w%, 20gcl/mtu burn high temp

1 sas2h: babcock wilcox 15x15, 3.00w%, 20gcl/mtu burn high temp light elements page 27

decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 nuclide concentrations, grams
 basis =single reactor assembly
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 total .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp light elements page 28
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 element radioactivity, curies
 basis =single reactor assembly
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 totals .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp light elements page 29
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 element thermal power, watts
 basis =single reactor assembly
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 totals .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp light elements page 30
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 nuclide gamma power, watts
 basis =single reactor assembly
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 total .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 31
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 nuclide concentrations, gram atoms
 basis = single reactor assembly
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 he 4 1.69E-02 2.64E-02 3.03E-02 3.28E-02 3.48E-02 3.69E-02 3.89E-02
 th230 2.71E-06 3.52E-06 4.34E-06 5.15E-06 5.96E-06 6.78E-06 7.60E-06
 th232 3.63E-07 5.10E-07 6.58E-07 8.06E-07 9.53E-07 1.10E-06 1.25E-06
 pa231 1.19E-06 1.22E-06 1.24E-06 1.26E-06 1.28E-06 1.30E-06 1.33E-06
 u232 6.25E-07 9.24E-07 1.16E-06 1.39E-06 1.51E-06 1.63E-06 1.73E-06
 u233 4.18E-06 4.34E-06 4.51E-06 4.67E-06 4.84E-06 5.00E-06 5.17E-06
 u234 3.44E-01 3.45E-01 3.46E-01 3.47E-01 3.47E-01 3.48E-01 3.49E-01
 u235 2.68E+01 2.68E+01 2.68E+01 2.68E+01 2.68E+01 2.68E+01 2.68E+01
 u236 5.99E+00 5.99E+00 5.99E+00 5.99E+00 5.99E+00 5.99E+00 5.99E+00
 u238 1.86E+03 1.86E+03 1.86E+03 1.86E+03 1.86E+03 1.86E+03 1.86E+03
 np236 1.57E-06 1.57E-06 1.57E-06 1.57E-06 1.57E-06 1.57E-06 1.57E-06
 np237 5.33E-01 5.41E-01 5.41E-01 5.42E-01 5.42E-01 5.43E-01 5.43E-01
 pu238 1.16E-01 1.24E-01 1.25E-01 1.25E-01 1.25E-01 1.24E-01 1.23E-01
 pu239 1.09E+01 1.10E+01 1.10E+01 1.10E+01 1.10E+01 1.10E+01 1.10E+01
 pu240 2.80E+00 2.80E+00 2.80E+00 2.80E+00 2.80E+00 2.80E+00 2.80E+00
 pu241 1.68E+00 1.61E+00 1.59E+00 1.49E+00 1.43E+00 1.37E+00 1.32E+00
 pu242 2.93E-01 2.93E-01 2.93E-01 2.93E-01 2.93E-01 2.93E-01 2.93E-01
 am241 7.00E-02 1.37E-01 2.00E-01 2.61E-01 3.20E-01 3.75E-01 4.29E-01
 am242m 1.78E-03 1.78E-03 1.77E-03 1.76E-03 1.76E-03 1.75E-03 1.74E-03
 am243 4.15E-02 4.15E-02 4.15E-02 4.15E-02 4.15E-02 4.15E-02 4.15E-02
 cm242 1.07E-02 2.97E-03 8.16E-04 2.27E-04 6.55E-05 2.12E-05 9.12E-06
 cm243 2.48E-04 2.43E-04 2.38E-04 2.33E-04 2.28E-04 2.24E-04 2.20E-04
 cm244 6.20E-03 6.02E-03 5.83E-03 5.65E-03 5.47E-03 5.30E-03 5.13E-03
 cm245 1.87E-04 1.87E-04 1.87E-04 1.87E-04 1.87E-04 1.87E-04 1.87E-04
 cm246 1.22E-05 1.22E-05 1.22E-05 1.22E-05 1.22E-05 1.22E-05 1.22E-05
 total 1.91E+03 1.91E+03 1.91E+03 1.91E+03 1.91E+03 1.91E+03 1.91E+03

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 32

decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec

0	element concentrations, gram atoms							
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
he	1.69E-02	2.64E-02	3.03E-02	3.28E-02	3.48E-02	3.69E-02	3.89E-02	
th	3.11E-06	4.07E-06	5.04E-06	6.00E-06	6.97E-06	7.94E-06	8.91E-06	
pa	1.21E-06	1.23E-06	1.26E-06	1.28E-06	1.30E-06	1.32E-06	1.34E-06	
u	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	
np	6.13E-01	5.41E-01	5.41E-01	5.42E-01	5.42E-01	5.43E-01	5.43E-01	
pu	1.58E+01	1.58E+01	1.58E+01	1.57E+01	1.57E+01	1.56E+01	1.55E+01	
am	1.14E-01	1.80E-01	2.44E-01	3.04E-01	3.63E-01	4.19E-01	4.72E-01	
cm	1.74E-02	9.43E-03	7.09E-03	6.31E-03	5.97E-03	5.75E-03	5.56E-03	
totals	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	

1 sas2h: babcock wilcox 15x15, 3.00w% 20gd/mtu burn high temp actinides
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec

0	nuclide concentrations, grams							
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
he 4	6.76E-02	1.06E-01	1.21E-01	1.31E-01	1.39E-01	1.47E-01	1.56E-01	
pb208	2.83E-07	7.04E-07	1.43E-06	2.49E-06	3.88E-06	5.59E-06	7.58E-06	
th228	1.05E-06	2.06E-06	3.24E-06	4.46E-06	5.63E-06	6.73E-06	7.71E-06	
th230	6.24E-04	8.10E-04	9.97E-04	1.18E-03	1.37E-03	1.56E-03	1.75E-03	
th232	8.41E-05	1.18E-04	1.53E-04	1.87E-04	2.21E-04	2.55E-04	2.90E-04	
th234	6.43E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	
pa231	2.75E-04	2.81E-04	2.86E-04	2.91E-04	2.96E-04	3.01E-04	3.06E-04	
pa233	4.19E-06	4.36E-06	4.36E-06	4.36E-06	4.37E-06	4.37E-06	4.37E-06	
u232	1.46E-04	2.14E-04	2.70E-04	3.14E-04	3.50E-04	3.78E-04	4.01E-04	
u233	9.73E-04	1.01E-03	1.05E-03	1.09E-03	1.13E-03	1.17E-03	1.20E-03	
u234	8.05E+01	8.07E+01	8.09E+01	8.11E+01	8.13E+01	8.15E+01	8.17E+01	
u235	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	
u236	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	
u237	1.82E+00	1.18E-05	1.13E-05	1.09E-05	1.04E-05	1.00E-05	9.64E-06	
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	
np236	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	
np237	1.26E+02	1.28E+02	1.28E+02	1.28E+02	1.28E+02	1.29E+02	1.29E+02	
np239	1.88E+01	8.68E-06	8.68E-06	8.68E-06	8.68E-06	8.67E-06	8.67E-06	
pu236	3.91E-04	3.22E-04	2.64E-04	2.16E-04	1.77E-04	1.45E-04	1.19E-04	
pu238	2.77E+01	2.95E+01	2.98E+01	2.98E+01	2.98E+01	2.99E+01	2.99E+01	
pu239	2.61E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	
pu240	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	
pu241	4.05E+02	3.89E+02	3.73E+02	3.59E+02	3.45E+02	3.31E+02	3.18E+02	
pu242	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	
am241	1.71E+01	3.30E+01	4.83E+01	6.29E+01	7.70E+01	9.09E+01	1.03E+02	
am242m	4.32E-01	4.30E-01	4.28E-01	4.27E-01	4.25E-01	4.23E-01	4.21E-01	
am242	1.97E-02	5.55E-06	5.53E-06	5.50E-06	5.48E-06	5.46E-06	5.44E-06	
am243	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	
cm242	2.60E+00	7.18E-01	1.97E-01	5.49E-02	1.58E-02	5.14E-03	2.21E-03	
cm243	6.03E-02	5.91E-02	5.79E-02	5.67E-02	5.56E-02	5.45E-02	5.34E-02	
cm244	1.51E+00	1.47E+00	1.42E+00	1.38E+00	1.34E+00	1.29E+00	1.25E+00	
cm245	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	
cm246	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	

1 sas2h: babcock wilcox 15x15, 3.00w% 20gd/mtu burn high temp actinides
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec

0	element concentrations, grams							
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
basis = single reactor assembly								

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
he	6.76E-02	1.06E-01	1.21E-01	1.31E-01	1.39E-01	1.47E-01	1.56E-01
pb	2.84E-07	7.06E-07	1.43E-06	2.49E-06	3.89E-06	5.60E-06	7.59E-06
th	7.16E-04	9.37E-04	1.16E-03	1.38E-03	1.61E-03	1.83E-03	2.05E-03
pa	2.79E-04	2.89E-04	2.90E-04	2.95E-04	3.00E-04	3.06E-04	3.11E-04
u	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05
rp	1.45E+02	1.28E+02	1.28E+02	1.28E+02	1.28E+02	1.29E+02	1.29E+02
pu	3.79E+03	3.79E+03	3.78E+03	3.76E+03	3.75E+03	3.73E+03	3.72E+03
am	2.76E+01	4.39E+01	5.88E+01	7.35E+01	8.75E+01	1.01E+02	1.14E+02
cm	4.22E+00	2.29E+00	1.73E+00	1.54E+00	1.46E+00	1.40E+00	1.36E+00
totals	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1 sas2h: babcock wilcox 15x15, 3.00w% 20gwd/mtu burn high temp actinides page 35
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 element radioactivity, curies
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
tl	3.11E-04	6.09E-04	9.58E-04	1.32E-03	1.67E-03	1.99E-03	2.28E-03
pb	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.39E-03
bi	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.39E-03
po	1.42E-03	2.78E-03	4.37E-03	6.01E-03	7.61E-03	9.08E-03	1.04E-02
m	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.39E-03
ra	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.39E-03
ac	5.99E-07	8.95E-07	1.22E-06	1.59E-06	1.87E-06	2.19E-06	2.51E-06
th	5.05E-01	1.64E-01	1.65E-01	1.66E-01	1.67E-01	1.68E-01	1.69E-01
pa	3.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01
u	4.51E+06	1.72E+00	1.69E+00	1.69E+00	1.62E+00	1.59E+00	1.56E+00
rp	4.40E+06	2.13E+00	2.13E+00	2.12E+00	2.12E+00	2.12E+00	2.12E+00
pu	6.89E+04	4.10E+04	3.95E+04	3.79E+04	3.65E+04	3.51E+04	3.37E+04
am	2.08E+04	1.24E+02	1.77E+02	2.27E+02	2.75E+02	3.21E+02	3.66E+02
cm	8.74E+03	2.50E+03	7.72E+02	2.96E+02	1.64E+02	1.25E+02	1.12E+02
bk	4.76E-05	1.33E-05	6.86E-06	3.55E-06	1.84E-06	9.50E-07	4.91E-07
totals	9.01E+06	4.37E+04	4.04E+04	3.85E+04	3.69E+04	3.55E+04	3.42E+04

1 sas2h: babcock wilcox 15x15, 3.00w% 20gwd/mtu burn high temp actinides page 36
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 element thermal power, watts
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
tl	7.26E-06	1.42E-05	2.24E-05	3.08E-05	3.90E-05	4.69E-05	5.34E-05
pb	1.63E-06	3.20E-06	5.04E-06	6.93E-06	8.77E-06	1.05E-05	1.20E-05
bi	1.45E-05	2.84E-05	4.46E-05	6.14E-05	7.77E-05	9.28E-05	1.06E-04
po	6.47E-05	1.27E-04	2.00E-04	2.75E-04	3.47E-04	4.19E-04	4.76E-04
m	3.28E-05	6.43E-05	1.01E-04	1.39E-04	1.76E-04	2.10E-04	2.41E-04
ra	2.96E-05	5.81E-05	9.14E-05	1.26E-04	1.59E-04	1.90E-04	2.18E-04
th	4.82E-04	1.32E-04	1.64E-04	1.97E-04	2.29E-04	2.58E-04	2.85E-04
pa	1.64E-03	9.63E-04	9.63E-04	9.63E-04	9.63E-04	9.63E-04	9.64E-04
u	1.21E+04	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02
rp	1.13E+04	7.77E-03	7.77E-03	7.77E-03	7.78E-03	7.78E-03	7.78E-03
pu	5.71E+01	2.79E+01	2.80E+01	2.79E+01	2.78E+01	2.78E+01	2.75E+01
am	5.21E+01	3.85E+00	5.60E+00	7.28E+00	8.89E+00	1.04E+01	1.19E+01
cm	3.19E+02	9.10E+01	2.80E+01	1.06E+01	5.80E+00	4.39E+00	3.92E+00
cf	1.73E-08	1.63E-08	1.50E-08	1.38E-08	1.27E-08	1.17E-08	1.09E-08
totals	2.38E+04	1.23E+02	6.16E+01	4.59E+01	4.25E+01	4.25E+01	4.34E+01

1 sas2h: babcock wilcox 15x15, 3.00w% 20gwd/mtu burn high temp actinides page 37
 decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 nuclide gamma power, watts
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
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ag109	2.18E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110m	1.04E-01	4.44E-02	1.92E-02	8.23E-03	3.54E-03	1.52E-03	6.53E-04
cd110	5.66E+00	5.72E+00	5.74E+00	5.74E+00	5.75E+00	5.76E+00	5.76E+00
cd111	4.98E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd112	2.63E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
cd113	4.52E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
cd113m	2.80E-02	2.69E-02	2.58E-02	2.48E-02	2.38E-02	2.29E-02	2.19E-02
in113	1.97E-03	3.10E-03	4.18E-03	5.21E-03	6.21E-03	7.16E-03	8.08E-03
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
sn114	6.61E-05	7.50E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
in115	4.53E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
sn115	4.59E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	2.29E-03	1.12E-03	5.43E-04	2.64E-04	1.29E-04	6.26E-05	3.05E-05
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
sn121m	1.08E-02	1.07E-02	1.05E-02	1.04E-02	1.03E-02	1.02E-02	1.01E-02
sb121	1.08E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
sn123	1.57E-02	3.07E-03	6.00E-04	1.17E-04	2.29E-05	4.47E-06	8.72E-07
sb123	1.22E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	2.99E-04	3.56E-04	3.66E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
te124	3.43E-02	3.94E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
sb125	1.86E+00	1.50E+00	1.22E+00	9.84E-01	7.92E-01	6.45E-01	5.22E-01
te125	8.02E-01	1.16E+00	1.45E+00	1.68E+00	1.87E+00	2.08E+00	2.19E+00
te125m	2.33E-02	2.13E-02	1.73E-02	1.40E-02	1.13E-02	9.16E-03	7.41E-03
sn126	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gpd/mtu burn high temp fission products page 40
 decay, following reactor irradiation identified by: power= 7.2mw, burnup= 9280.mwd, flux= 1.63E+13n/cm^2-sec
 0 nuclide concentrations, grams
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
te126	7.76E-02	7.84E-02	7.84E-02	7.85E-02	7.85E-02	7.85E-02	7.85E-02
te127m	2.94E-01	4.41E-02	6.37E-03	9.19E-04	1.33E-04	1.92E-05	2.77E-06
i127	1.08E+01	1.11E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
i129	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	1.18E-03	1.20E-03	1.21E-03	1.21E-03	1.21E-03	1.21E-03	1.21E-03
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
xe131	1.36E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
ba132	4.82E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
cs133	3.38E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
cs134	2.08E+01	1.57E+01	1.19E+01	8.99E+00	6.79E+00	5.13E+00	3.88E+00
ba134	8.91E+00	1.40E+01	1.79E+01	2.08E+01	2.30E+01	2.46E+01	2.59E+01
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
ba135	3.81E-02	3.82E-02	3.83E-02	3.83E-02	3.84E-02	3.84E-02	3.84E-02
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
ba136	4.65E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
cs137	3.46E+02	3.39E+02	3.33E+02	3.28E+02	3.20E+02	3.14E+02	3.08E+02

er170 7.89E-07 7.89E-07 7.89E-07 7.89E-07 7.89E-07 7.89E-07 7.89E-07
 yb171 3.69E-07 5.46E-07 6.77E-07 7.75E-07 8.46E-07 9.00E-07 9.39E-07
 total 9.58E+03 9.58E+03 9.58E+03 9.58E+03 9.58E+03 9.58E+03 9.58E+03

1 sas2h: babcock wilcox 15x15, 3.00wG, 20g/d/mtu burn high temp fission products page 42
 decay, following reactor irradiation identified by: power= 7.2mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 element radioactivity, curies
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
h	1.31E+02	1.25E+02	1.20E+02	1.14E+02	1.09E+02	1.04E+02	9.91E+01
be	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07
c	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05
se	2.20E+05	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01
kr	9.07E+05	2.47E+03	2.35E+03	2.22E+03	2.11E+03	2.00E+03	1.89E+03
rb	1.29E+06	2.64E-03	6.24E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr	1.90E+06	2.54E+04	2.21E+04	2.16E+04	2.11E+04	2.07E+04	2.03E+04
y	2.46E+06	2.99E+04	2.22E+04	2.16E+04	2.11E+04	2.07E+04	2.03E+04
zr	2.03E+06	1.24E+04	4.59E+02	1.73E+01	9.78E-01	3.72E-01	3.50E-01
rb	2.99E+06	2.64E+04	1.01E+03	3.78E+01	1.46E+00	1.31E-01	9.06E-02
tr	2.04E+06	3.99E+00	3.99E+00	3.99E+00	3.99E+00	3.99E+00	3.99E+00
ru	8.68E+05	6.47E+04	3.59E+04	2.03E+04	1.15E+04	6.54E+03	3.71E+03
rh	1.11E+06	6.47E+04	3.59E+04	2.03E+04	1.15E+04	6.54E+03	3.71E+03
pd	8.87E+04	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
ag	1.23E+05	2.15E+02	9.23E+01	3.97E+01	1.71E+01	7.33E+00	3.15E+00
cd	1.75E+04	6.65E+00	5.81E+00	5.57E+00	5.35E+00	5.13E+00	4.92E+00
sn	2.79E+05	3.06E+01	8.11E+00	3.09E+00	1.79E+00	1.38E+00	1.22E+00
sb	7.37E+05	1.58E+03	1.27E+03	1.03E+03	8.35E+02	6.78E+02	5.47E+02
te	1.64E+06	1.24E+03	4.30E+02	2.69E+02	2.06E+02	1.65E+02	1.34E+02
i	2.39E+06	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03
cs	1.59E+06	4.99E+04	4.44E+04	4.00E+04	3.67E+04	3.40E+04	3.18E+04
br	1.98E+06	2.79E+04	2.73E+04	2.68E+04	2.63E+04	2.58E+04	2.53E+04
ce	1.56E+06	1.31E+05	6.21E+04	2.96E+04	1.41E+04	6.74E+03	3.21E+03
pr	1.33E+06	1.32E+05	6.30E+04	3.00E+04	1.43E+04	6.83E+03	3.26E+03
pm	2.92E+05	4.43E+04	3.55E+04	2.85E+04	2.28E+04	1.83E+04	1.47E+04
sm	8.12E+04	1.62E+02	1.61E+02	1.60E+02	1.59E+02	1.58E+02	1.57E+02
eu	2.66E+04	3.21E+03	2.93E+03	2.68E+03	2.45E+03	2.24E+03	2.06E+03
gd	1.14E+03	1.05E+00	4.40E-01	1.84E-01	7.66E-02	3.20E-02	1.34E-02
tb	3.82E+02	5.44E+00	2.94E-01	1.59E-02	8.59E-04	4.64E-05	2.51E-06
ho	4.24E+00	4.27E-05	4.27E-05	4.27E-05	4.26E-05	4.26E-05	4.26E-05
tm	1.67E-03	5.51E-04	4.07E-04	3.01E-04	2.23E-04	1.65E-04	1.22E-04
totals	3.45E+07	6.17E+05	3.57E+05	2.45E+05	1.86E+05	1.52E+05	1.31E+05

1 sas2h: babcock wilcox 15x15, 3.00wG, 20g/d/mtu burn high temp fission products page 43
 decay, following reactor irradiation identified by: power= 7.2mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
 0 element thermal power, watts
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
h	4.43E-03	4.23E-03	4.03E-03	3.85E-03	3.67E-03	3.50E-03	3.34E-03
c	9.77E-09	9.77E-09	9.76E-09	9.76E-09	9.76E-09	9.76E-09	9.76E-09
se	3.98E+03	6.03E-05	6.03E-05	6.03E-05	6.03E-05	6.03E-05	6.03E-05
kr	1.48E+04	3.71E+00	3.52E+00	3.33E+00	3.16E+00	2.99E+00	2.84E+00
sr	2.76E+04	3.63E+01	2.57E+01	2.51E+01	2.45E+01	2.40E+01	2.36E+01
y	4.05E+04	1.49E+02	1.23E+02	1.20E+02	1.17E+02	1.15E+02	1.12E+02
zr	2.05E+04	6.24E+01	2.31E+00	8.56E-02	3.21E-03	1.57E-04	4.37E-05
rb	4.16E+04	1.26E+02	4.84E+00	1.80E-01	6.66E-03	2.60E-04	2.46E-05
tr	2.36E+04	1.96E-03	1.96E-03	1.96E-03	1.96E-03	1.96E-03	1.96E-03
ru	4.60E+03	8.43E+00	2.16E+00	1.21E+00	6.86E-01	3.89E-01	2.20E-01
rh	5.01E+03	6.07E+02	3.44E+02	1.93E+02	1.11E+02	6.27E+01	3.59E+01
pd	2.93E+02	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06	1.43E-06
ag	4.89E+02	3.56E+00	1.53E+00	6.57E-01	2.82E-01	1.21E-01	5.21E-02

cd	2.07E+02	8.85E-03	6.33E-03	6.06E-03	5.81E-03	5.58E-03	5.36E-03
sn	3.71E+03	8.18E-02	1.71E-02	4.17E-03	1.48E-03	8.70E-04	7.11E-04
sb	1.36E+04	5.02E+00	4.03E+00	3.28E+00	2.64E+00	2.14E+00	1.73E+00
te	1.57E+04	1.19E+00	3.74E-01	2.28E-01	1.74E-01	1.39E-01	1.12E-01
i	3.59E+04	4.13E-06	4.13E-06	4.13E-06	4.13E-06	4.13E-06	4.13E-06
cs	2.92E+04	2.41E+02	1.89E+02	1.50E+02	1.21E+02	9.81E+01	8.10E+01
ba	1.73E+04	1.10E+02	1.07E+02	1.05E+02	1.03E+02	1.01E+02	9.95E+01
ce	7.13E+03	8.59E+01	4.06E+01	1.94E+01	9.24E+00	4.41E+00	2.10E+00
pr	1.06E+04	9.56E+02	4.56E+02	2.17E+02	1.04E+02	4.95E+01	2.36E+01
pn	1.35E+03	1.69E+01	1.30E+01	1.05E+01	8.39E+00	6.73E+00	5.40E+00
sm	2.00E+02	1.91E-02	1.90E-02	1.88E-02	1.87E-02	1.86E-02	1.85E-02
eu	2.36E+02	1.78E+01	1.66E+01	1.55E+01	1.45E+01	1.35E+01	1.26E+01
gd	3.47E+00	9.25E-04	3.86E-04	1.61E-04	6.74E-05	2.81E-05	1.17E-05
tb	2.21E+00	4.77E-02	2.58E-03	1.39E-04	7.53E-06	4.07E-07	2.20E-08
ho	1.82E-02	4.49E-07	4.49E-07	4.49E-07	4.48E-07	4.48E-07	4.48E-07
tm	5.59E-06	8.70E-08	6.32E-08	4.66E-08	3.44E-08	2.55E-08	1.88E-08
totals	4.30E+05	2.43E+03	1.33E+03	8.67E+02	6.19E+02	4.81E+02	4.01E+02

1
 sas2h: babcock wilcox 15x15, 3.00wt%, 20gcd/mtu burn high temp fission products page 44
 decay, following reactor irradiation identified by: power= 7.2mw, burnup= 9280.mcd, flux= 1.63E+13/cm**2-sec
 nuclide gamma power, watts
 basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	3.45E-02	3.27E-02	3.10E-02	2.94E-02	2.78E-02	2.64E-02	2.50E-02
y 90	2.35E-04	2.27E-04	2.22E-04	2.17E-04	2.13E-04	2.09E-04	2.05E-04
y 91	5.30E+00	1.45E-01	3.94E-03	1.07E-04	2.91E-06	7.89E-08	2.14E-09
rb 98m	2.93E-07	4.19E-07	5.41E-07	6.59E-07	7.73E-07	8.82E-07	9.88E-07
rb 94	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07
zr 95	1.45E+03	5.37E+01	1.99E+00	7.37E-02	2.73E-03	1.01E-04	3.74E-06
rb 95	1.52E+03	1.19E+02	4.56E+00	1.69E-01	6.27E-03	2.32E-04	8.61E-06
rb 95m	1.57E+00	5.92E-02	2.19E-03	8.12E-05	3.01E-06	1.11E-07	4.13E-09
tc 98	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09
tc 99	1.44E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08
rh102	3.36E-03	2.75E-03	2.26E-03	1.85E-03	1.52E-03	1.24E-03	1.02E-03
rh106	1.41E+02	7.73E+01	4.38E+01	2.48E+01	1.41E+01	7.98E+00	4.52E+00
ag108	1.74E-05	1.04E-05	1.03E-05	1.03E-05	1.02E-05	1.02E-05	1.01E-05
ag108m	1.06E-05	1.05E-05	1.05E-05	1.04E-05	1.04E-05	1.03E-05	1.03E-05
ag110	3.54E+00	5.25E-04	2.25E-04	9.69E-05	4.16E-05	1.79E-05	7.69E-06
ag110m	8.01E+00	3.44E+00	1.48E+00	6.39E-01	2.73E-01	1.17E-01	5.04E-02
cd113m	2.64E-06	2.53E-06	2.43E-06	2.33E-06	2.24E-06	2.15E-06	2.06E-06
sn119m	5.82E-04	2.83E-04	1.38E-04	6.71E-05	3.27E-05	1.59E-05	7.74E-06
sn121m	1.71E-05	1.70E-05	1.68E-05	1.66E-05	1.64E-05	1.63E-05	1.61E-05
sn123	5.29E-03	1.03E-03	2.02E-04	3.94E-05	7.70E-06	1.50E-06	2.99E-07
te123m	5.38E-04	9.24E-05	1.58E-05	2.72E-06	4.66E-07	8.00E-08	1.37E-08
sb124	1.05E+00	3.15E-02	9.47E-04	2.85E-05	8.55E-07	2.57E-08	7.73E-10
sb125	4.98E+00	4.05E+00	3.28E+00	2.65E+00	2.15E+00	1.74E+00	1.41E+00
te125m	8.84E-02	8.06E-02	6.57E-02	5.32E-02	4.30E-02	3.48E-02	2.82E-02
sn126	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04
sb126	1.04E+00	3.17E-04	3.17E-04	3.17E-04	3.17E-04	3.17E-04	3.17E-04
sb126m	7.41E-01	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03
te127	4.78E-01	1.18E-02	1.71E-03	2.47E-04	3.56E-05	5.14E-06	7.42E-07
te127m	1.83E-01	2.74E-02	3.95E-03	5.71E-04	8.24E-05	1.19E-05	1.72E-06
i129	1.28E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06
ba133	1.54E-08	1.44E-08	1.38E-08	1.30E-08	1.24E-08	1.17E-08	1.11E-08
cs134	2.49E+02	1.88E+02	1.42E+02	1.07E+02	8.11E+01	6.13E+01	4.63E+01
ba137m	1.01E+02	9.90E+01	9.71E+01	9.52E+01	9.34E+01	9.16E+01	8.99E+01
ce139	2.19E-05	4.73E-06	1.02E-06	2.21E-07	4.76E-08	1.03E-08	2.22E-09
ce144	3.07E+01	1.47E+01	6.99E+00	3.34E+00	1.59E+00	7.59E-01	3.62E-01
pr144	4.69E+01	2.23E+01	1.06E+01	5.07E+00	2.42E+00	1.15E+00	5.50E-01
pr144m	2.84E-01	1.35E-01	6.44E-02	3.07E-02	1.47E-02	6.99E-03	3.33E-03

1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
4.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
4.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
5.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mev/sec	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

spectrum of energy release rates, mev/watt-sec
basis = single reactor assembly

eenee		time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
1.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
3.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
5.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
8.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
1.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
1.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
3.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
6.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
1.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
2.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
2.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
3.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
3.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
4.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
4.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
5.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gamma watts	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

photon spectrum as a function of time for fission products

ses2h: babcock wilcox 15x15, 3.00wt%, 20guc/mtu burn high temp
power= 7.25 mw, burnup= 9280.mwd, flux= 1.63E+13 n**2-sec
spectrum of photon release rates, photons/sec
basis = single reactor assembly

eenee		time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
1.00E-02	4.22E+17	6.46E+15	3.54E+15	2.14E+15	1.43E+15	1.05E+15	8.42E+14	
3.00E-02	1.87E+17	2.77E+15	1.52E+15	9.21E+14	6.14E+14	4.54E+14	3.69E+14	
5.50E-02	9.88E+16	1.51E+15	8.32E+14	5.00E+14	3.29E+14	2.39E+14	1.91E+14	
8.50E-02	6.82E+16	9.54E+14	5.17E+14	3.05E+14	1.96E+14	1.39E+14	1.08E+14	
1.20E-01	5.58E+16	1.20E+15	6.29E+14	3.51E+14	2.13E+14	1.42E+14	1.06E+14	
1.70E-01	9.03E+16	6.24E+14	3.35E+14	1.96E+14	1.25E+14	8.75E+13	6.74E+13	
3.00E-01	1.91E+17	7.19E+14	3.89E+14	2.25E+14	1.41E+14	9.75E+13	7.41E+13	
6.50E-01	3.90E+17	5.53E+15	2.94E+15	2.28E+15	1.87E+15	1.59E+15	1.39E+15	
1.13E+00	1.26E+17	1.80E+14	1.20E+14	8.60E+13	6.61E+13	5.37E+13	4.55E+13	
1.58E+00	6.53E+16	6.03E+13	3.63E+13	2.30E+13	1.53E+13	1.07E+13	7.78E+12	
2.00E+00	1.92E+16	4.68E+13	2.27E+13	1.11E+13	5.41E+12	2.66E+12	1.32E+12	
2.40E+00	1.58E+16	2.84E+12	1.57E+12	8.74E+11	4.87E+11	2.72E+11	1.53E+11	
2.80E+00	6.55E+15	4.44E+11	2.49E+11	1.40E+11	7.84E+10	4.41E+10	2.49E+10	

3.25E+00	3.37E+15	7.07E+10	4.01E+10	2.27E+10	1.29E+10	7.30E+09	4.14E+09
3.75E+00	1.60E+15	3.12E+07	1.77E+07	1.00E+07	5.68E+06	3.22E+06	1.82E+06
4.25E+00	1.58E+15	9.80E+06	1.00E+06	1.02E+05	1.04E+05	1.05E+05	1.06E+05
4.75E+00	4.67E+14	4.92E+06	5.04E+06	5.14E+06	5.22E+06	5.28E+06	5.33E+06
5.50E+00	3.58E+14	3.65E+06	3.74E+06	3.81E+06	3.87E+06	3.92E+06	3.95E+06
total	1.74E+18	2.01E+16	1.09E+16	7.04E+15	5.00E+15	3.85E+15	3.20E+15
mev/sec	7.22E+17	4.77E+15	2.58E+15	1.88E+15	1.48E+15	1.29E+15	1.06E+15

spectrum of energy release rates, mev/watt-sec
basis = single reactor assembly

mean (mev)	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1.00E-02	5.82E+08	8.90E+06	4.88E+06	2.96E+06	1.97E+06	1.44E+06	1.16E+06
3.00E-02	7.73E+08	1.15E+07	6.30E+06	3.81E+06	2.54E+06	1.88E+06	1.52E+06
5.50E-02	7.50E+08	1.15E+07	6.31E+06	3.79E+06	2.50E+06	1.82E+06	1.45E+06
8.50E-02	8.00E+08	1.12E+07	6.07E+06	3.57E+06	2.29E+06	1.63E+06	1.27E+06
1.20E-01	9.23E+08	1.99E+07	1.04E+07	5.81E+06	3.52E+06	2.35E+06	1.75E+06
1.70E-01	2.12E+09	1.44E+07	7.85E+06	4.60E+06	2.95E+06	2.05E+06	1.58E+06
3.00E-01	7.91E+09	2.98E+07	1.61E+07	9.32E+06	5.85E+06	4.03E+06	3.07E+06
6.50E-01	3.50E+10	4.96E+08	2.64E+08	2.04E+08	1.68E+08	1.43E+08	1.25E+08
1.13E+00	1.96E+10	2.79E+07	1.86E+07	1.33E+07	1.03E+07	8.33E+06	7.06E+06
1.58E+00	1.42E+10	1.31E+07	7.88E+06	4.99E+06	3.33E+06	2.32E+06	1.69E+06
2.00E+00	5.31E+09	1.29E+07	6.26E+06	3.05E+06	1.49E+06	7.34E+05	3.64E+05
2.40E+00	5.22E+09	9.39E+05	5.21E+05	2.89E+05	1.61E+05	9.02E+04	5.05E+04
2.80E+00	2.53E+09	1.71E+05	9.60E+04	5.39E+04	3.08E+04	1.70E+04	9.60E+03
3.25E+00	1.51E+09	3.17E+04	1.80E+04	1.02E+04	5.78E+03	3.27E+03	1.85E+03
3.75E+00	8.27E+08	1.61E+01	9.14E+00	5.18E+00	2.94E+00	1.67E+00	9.44E-01
4.25E+00	9.28E+08	5.75E-12	5.89E-12	6.00E-12	6.10E-12	6.17E-12	6.23E-12
4.75E+00	3.06E+08	3.22E-12	3.30E-12	3.37E-12	3.42E-12	3.46E-12	3.49E-12
5.50E+00	2.71E+08	2.77E-12	2.84E-12	2.89E-12	2.94E-12	2.97E-12	3.00E-12
total	9.95E+10	6.58E+08	3.55E+08	2.60E+08	2.05E+08	1.65E+08	1.46E+08
gamma watts	1.16E+05	7.65E+02	4.13E+02	3.02E+02	2.38E+02	1.97E+02	1.69E+02

page 48

principal photon sources in group 1, photons/sec

mean energy = .0100 mev. nuclides exceeding 1.0E-03 of total group release rate (1.05E+15) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	1.38E+13	1.31E+13	1.24E+13	1.17E+13	1.11E+13	1.05E+13	9.98E+12
sr 90	9.35E+13	9.16E+13	8.97E+13	8.79E+13	8.61E+13	8.44E+13	8.27E+13
y 90	4.68E+14	4.50E+14	4.41E+14	4.32E+14	4.23E+14	4.15E+14	4.06E+14
rh106	3.42E+15	1.88E+15	1.07E+15	6.05E+14	3.43E+14	1.95E+14	1.10E+14
sb125	4.63E+12	3.77E+12	3.05E+12	2.47E+12	2.00E+12	1.62E+12	1.31E+12
cs134	8.74E+13	6.60E+13	4.99E+13	3.77E+13	2.85E+13	2.15E+13	1.63E+13
cs137	1.06E+14	1.04E+14	1.02E+14	1.00E+14	9.83E+13	9.65E+13	9.46E+13
ba137m	5.01E+12	4.89E+12	4.79E+12	4.70E+12	4.61E+12	4.52E+12	4.44E+12
ce144	5.25E+14	2.51E+14	1.20E+14	5.70E+13	2.72E+13	1.30E+13	6.18E+12
pr144	6.98E+15	3.32E+15	1.58E+15	7.55E+14	3.60E+14	1.72E+14	8.19E+13
pm147	6.23E+13	5.14E+13	4.12E+13	3.31E+13	2.69E+13	2.13E+13	1.71E+13
eu154	1.30E+13	1.21E+13	1.13E+13	1.06E+13	9.91E+12	9.27E+12	8.67E+12
eu155	4.07E+12	3.60E+12	3.18E+12	2.81E+12	2.49E+12	2.20E+12	1.94E+12

principal photon sources in group 2, photons/sec

mean energy = .0300 mev. nuclides exceeding 1.0E-03 of total group release rate (4.54E+14) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	4.02E+12	3.81E+12	3.61E+12	3.42E+12	3.24E+12	3.07E+12	2.91E+12
sr 90	2.64E+13	2.59E+13	2.54E+13	2.48E+13	2.43E+13	2.38E+13	2.34E+13
y 90	1.52E+14	1.47E+14	1.44E+14	1.41E+14	1.38E+14	1.35E+14	1.32E+14
rh106	1.14E+15	6.29E+14	3.57E+14	2.02E+14	1.15E+14	6.50E+13	3.68E+13
sb125	3.55E+13	2.89E+13	2.34E+13	1.89E+13	1.53E+13	1.24E+13	1.00E+13
te125m	1.79E+13	1.64E+13	1.53E+13	1.08E+13	8.72E+12	7.06E+12	5.71E+12

cs134	3.26E+13	2.46E+13	1.86E+13	1.41E+13	1.06E+13	8.03E+12	6.07E+12
cs137	2.96E+13	2.90E+13	2.85E+13	2.79E+13	2.74E+13	2.69E+13	2.64E+13
ba137m	8.60E+13	8.39E+13	8.23E+13	8.08E+13	7.92E+13	7.77E+13	7.62E+13
ce144	1.22E+15	5.82E+14	2.78E+14	1.32E+14	6.31E+13	3.01E+13	1.44E+13
pr144	2.31E+15	1.10E+15	5.24E+14	2.50E+14	1.19E+14	5.68E+13	2.71E+13
pr144m	4.72E+13	2.24E+13	1.07E+13	5.10E+12	2.43E+12	1.16E+12	5.54E+11
pm147	1.37E+13	1.13E+13	9.07E+12	7.27E+12	5.84E+12	4.68E+12	3.76E+12
eu154	2.83E+12	2.64E+12	2.47E+12	2.31E+12	2.16E+12	2.02E+12	1.89E+12

principal photon sources in group 3, photons/sec

mean energy = .0650 mev. nuclides exceeding 1.0E-03 of total group release rate (2.39E+14) at 1521.9 d

nuclide	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	2.46E+12	2.33E+12	2.21E+12	2.10E+12	1.99E+12	1.88E+12	1.78E+12
sr 90	1.56E+13	1.53E+13	1.50E+13	1.47E+13	1.44E+13	1.41E+13	1.38E+13
y 90	1.05E+14	1.01E+14	9.93E+13	9.73E+13	9.53E+13	9.34E+13	9.15E+13
rh106	8.10E+14	4.46E+14	2.53E+14	1.43E+14	8.12E+13	4.60E+13	2.61E+13
cs134	1.65E+13	1.09E+13	8.26E+12	6.24E+12	4.72E+12	3.57E+12	2.69E+12
cs137	1.72E+13	1.69E+13	1.66E+13	1.63E+13	1.59E+13	1.56E+13	1.53E+13
ce144	1.77E+14	8.42E+13	4.02E+13	1.91E+13	9.13E+12	4.36E+12	2.08E+12
pr144	1.62E+15	7.71E+14	3.68E+14	1.75E+14	8.37E+13	3.99E+13	1.90E+13
pm147	5.75E+12	4.75E+12	3.81E+12	3.06E+12	2.45E+12	1.97E+12	1.58E+12
eu154	1.66E+13	1.56E+13	1.46E+13	1.36E+13	1.27E+13	1.19E+13	1.11E+13
eu155	1.19E+13	1.05E+13	9.28E+12	8.20E+12	7.25E+12	6.41E+12	5.66E+12

principal photon sources in group 4, photons/sec

mean energy = .0650 mev. nuclides exceeding 1.0E-03 of total group release rate (1.39E+14) at 1521.9 d

nuclide	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	1.23E+12	1.17E+12	1.11E+12	1.05E+12	9.94E+11	9.42E+11	8.92E+11
sr 90	7.45E+12	7.29E+12	7.15E+12	7.00E+12	6.86E+12	6.72E+12	6.58E+12
y 90	6.09E+13	5.87E+13	5.75E+13	5.63E+13	5.52E+13	5.40E+13	5.29E+13
rh106	4.81E+14	2.65E+14	1.50E+14	8.51E+13	4.82E+13	2.73E+13	1.55E+13
cs134	7.00E+12	5.29E+12	4.00E+12	3.02E+12	2.28E+12	1.73E+12	1.30E+12
cs137	8.06E+12	7.91E+12	7.76E+12	7.61E+12	7.47E+12	7.32E+12	7.18E+12
ce144	2.49E+14	1.19E+14	5.67E+13	2.70E+13	1.25E+13	6.15E+12	2.93E+12
pr144	9.59E+14	4.54E+14	2.17E+14	1.09E+14	4.92E+13	2.35E+13	1.12E+13
pm147	1.64E+12	1.35E+12	1.08E+12	8.70E+11	6.98E+11	5.60E+11	4.49E+11
eu154	9.14E+11	8.54E+11	7.99E+11	7.47E+11	6.98E+11	6.53E+11	6.10E+11
eu155	1.80E+13	1.59E+13	1.41E+13	1.25E+13	1.10E+13	9.73E+12	8.60E+12

principal photon sources in group 5, photons/sec

mean energy = .1200 mev. nuclides exceeding 1.0E-03 of total group release rate (1.42E+14) at 1521.9 d

nuclide	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	7.43E+11	7.04E+11	6.67E+11	6.32E+11	5.99E+11	5.68E+11	5.38E+11
sr 90	4.24E+12	4.15E+12	4.07E+12	3.99E+12	3.90E+12	3.82E+12	3.75E+12
y 90	4.25E+13	4.13E+13	4.04E+13	3.96E+13	3.88E+13	3.80E+13	3.72E+13
rh106	3.48E+14	1.91E+14	1.08E+14	6.15E+13	3.48E+13	1.97E+13	1.12E+13
cs134	4.08E+12	3.08E+12	2.33E+12	1.78E+12	1.33E+12	1.00E+12	7.59E+11
cs137	4.52E+12	4.43E+12	4.35E+12	4.27E+12	4.19E+12	4.11E+12	4.03E+12
ce144	1.22E+15	5.82E+14	2.78E+14	1.32E+14	6.32E+13	3.02E+13	1.44E+13
pr144	6.83E+14	3.25E+14	1.59E+14	7.39E+13	3.52E+13	1.68E+13	8.02E+12
pm147	5.19E+11	4.28E+11	3.44E+11	2.78E+11	2.21E+11	1.78E+11	1.42E+11
eu154	3.10E+13	2.89E+13	2.71E+13	2.53E+13	2.37E+13	2.21E+13	2.07E+13
eu155	1.03E+13	9.10E+12	8.04E+12	7.11E+12	6.28E+12	5.55E+12	4.91E+12

principal photon sources in group 6, photons/sec

mean energy = .1700 mev. nuclides exceeding 1.0E-03 of total group release rate (8.75E+13) at 1521.9 d

nuclide	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	5.90E+11	5.59E+11	5.30E+11	5.02E+11	4.76E+11	4.51E+11	4.27E+11
sr 90	3.02E+12	2.96E+12	2.90E+12	2.84E+12	2.78E+12	2.73E+12	2.67E+12

y 90	4.42E+13	4.25E+13	4.17E+13	4.08E+13	4.00E+13	3.92E+13	3.84E+13
rh106	3.73E+14	2.05E+14	1.16E+14	6.59E+13	3.74E+13	2.12E+13	1.20E+13
sb125	5.35E+12	4.35E+12	3.52E+12	2.85E+12	2.31E+12	1.87E+12	1.51E+12
cs134	3.05E+12	2.30E+12	1.74E+12	1.32E+12	9.94E+11	7.51E+11	5.68E+11
cs137	3.19E+12	3.13E+12	3.07E+12	3.01E+12	2.96E+12	2.90E+12	2.84E+12
pr144	7.22E+14	3.44E+14	1.64E+14	7.81E+13	3.73E+13	1.78E+13	8.48E+12
eu154	7.24E+11	6.77E+11	6.33E+11	5.92E+11	5.53E+11	5.17E+11	4.84E+11

page 50

1
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principal photon sources in group 7, photons/sec
 mean energy = .3000 mev. nuclides exceeding 1.0E-03 of total group release rate (9.75E+13) at 1521.9 d

nuclide	initial	time after discharge					
		304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	3.56E+11	3.39E+11	3.20E+11	3.03E+11	2.87E+11	2.72E+11	2.58E+11
sr 90	1.37E+12	1.34E+12	1.32E+12	1.29E+12	1.26E+12	1.24E+12	1.21E+12
y 90	4.91E+13	4.72E+13	4.63E+13	4.53E+13	4.44E+13	4.35E+13	4.26E+13
rh106	4.50E+14	2.47E+14	1.40E+14	7.95E+13	4.51E+13	2.55E+13	1.45E+13
sb125	2.03E+12	1.65E+12	1.33E+12	1.08E+12	8.73E+11	7.07E+11	5.72E+11
cs134	1.94E+12	1.47E+12	1.11E+12	8.37E+11	6.33E+11	4.78E+11	3.61E+11
cs137	1.62E+12	1.58E+12	1.55E+12	1.52E+12	1.50E+12	1.47E+12	1.44E+12
pr144	8.46E+14	4.02E+14	1.92E+14	9.15E+13	4.36E+13	2.08E+13	9.92E+12
eu154	4.73E+12	4.42E+12	4.14E+12	3.87E+12	3.62E+12	3.39E+12	3.16E+12

0

principal photon sources in group 8, photons/sec
 mean energy = .6500 mev. nuclides exceeding 1.0E-03 of total group release rate (1.59E+15) at 1521.9 d

nuclide	initial	time after discharge					
		304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.07E+13	2.00E+13	1.96E+13	1.92E+13	1.88E+13	1.84E+13	1.80E+13
rh106	1.39E+15	7.64E+14	4.33E+14	2.45E+14	1.39E+14	7.89E+13	4.47E+13
sb125	4.35E+13	3.54E+13	2.86E+13	2.32E+13	1.87E+13	1.52E+13	1.23E+13
cs134	2.27E+15	1.72E+15	1.30E+15	9.81E+14	7.42E+14	5.60E+14	4.24E+14
ba137m	9.67E+14	9.44E+14	9.26E+14	9.08E+14	8.91E+14	8.74E+14	8.57E+14
pr144	5.77E+14	2.74E+14	1.31E+14	6.24E+13	2.98E+13	1.42E+13	6.77E+12
eu154	3.96E+13	3.70E+13	3.46E+13	3.24E+13	3.03E+13	2.83E+13	2.65E+13

0

principal photon sources in group 9, photons/sec
 mean energy = 1.1250 mev. nuclides exceeding 1.0E-03 of total group release rate (5.37E+13) at 1521.9 d

nuclide	initial	time after discharge					
		304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.70E+12	2.60E+12	2.55E+12	2.50E+12	2.45E+12	2.40E+12	2.35E+12
rh106	1.29E+14	7.12E+13	4.03E+13	2.29E+13	1.30E+13	7.35E+12	4.16E+12
ag110m	5.33E+12	2.29E+12	9.84E+11	4.23E+11	1.82E+11	7.81E+10	3.35E+10
cs134	2.78E+13	2.10E+13	1.59E+13	1.20E+13	9.08E+12	6.86E+12	5.19E+12
pr144	7.39E+13	3.51E+13	1.67E+13	7.99E+12	3.81E+12	1.82E+12	8.66E+11
eu152	7.28E+10	6.97E+10	6.67E+10	6.37E+10	6.12E+10	5.86E+10	5.61E+10
eu154	4.91E+13	4.59E+13	4.29E+13	4.02E+13	3.75E+13	3.51E+13	3.28E+13

0

principal photon sources in group 10, photons/sec
 mean energy = 1.5750 mev. nuclides exceeding 1.0E-03 of total group release rate (1.07E+13) at 1521.9 d

nuclide	initial	time after discharge					
		304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	3.45E+11	3.32E+11	3.26E+11	3.19E+11	3.13E+11	3.06E+11	3.00E+11
rh106	2.44E+13	1.34E+13	7.61E+12	4.31E+12	2.44E+12	1.39E+12	7.85E+11
ag110m	7.10E+12	3.05E+12	1.31E+12	5.63E+11	2.42E+11	1.04E+11	4.47E+10
cs134	2.63E+13	1.99E+13	1.50E+13	1.13E+13	8.57E+12	6.48E+12	4.90E+12
pr144	4.59E+13	2.18E+13	1.04E+13	4.97E+12	2.37E+12	1.13E+12	5.39E+11
eu152	3.34E+10	3.20E+10	3.07E+10	2.94E+10	2.81E+10	2.69E+10	2.58E+10
eu154	1.78E+12	1.66E+12	1.55E+12	1.45E+12	1.36E+12	1.27E+12	1.19E+12

page 51

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principal photon sources in group 11, photons/sec
 mean energy = 2.0000 mev. nuclides exceeding 1.0E-03 of total group release rate (2.66E+12) at 1521.9 d

nuclide	initial	time after discharge					
		304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.07E+10	1.99E+10	1.95E+10	1.91E+10	1.87E+10	1.83E+10	1.79E+10

rh106 7.93E+12 4.36E+12 2.47E+12 1.40E+12 7.94E+11 4.50E+11 2.55E+11
 pr144 8.91E+13 4.24E+13 2.02E+13 9.64E+12 4.60E+12 2.19E+12 1.06E+12
 0 principal photon sources in group 12, photons/sec
 mean energy = 2.4000 mev. nuclides exceeding 1.0E-03 of total group release rate (2.72E+11) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 rh106 4.43E+12 2.44E+12 1.38E+12 7.89E+11 4.44E+11 2.52E+11 1.43E+11
 pr144 8.42E+11 4.00E+11 1.91E+11 9.11E+10 4.34E+10 2.07E+10 9.88E+09
 0 principal photon sources in group 13, photons/sec
 mean energy = 2.8000 mev. nuclides exceeding 1.0E-03 of total group release rate (4.41E+10) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 rh106 7.47E+11 4.11E+11 2.33E+11 1.32E+11 7.49E+10 4.25E+10 2.41E+10
 pr144 6.78E+10 3.22E+10 1.54E+10 7.33E+09 3.50E+09 1.67E+09 7.96E+08
 0 principal photon sources in group 14, photons/sec
 mean energy = 3.2500 mev. nuclides exceeding 1.0E-03 of total group release rate (7.30E+09) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 rh106 1.29E+11 7.07E+10 4.01E+10 2.27E+10 1.29E+10 7.30E+09 4.14E+09
 0 principal photon sources in group 15, photons/sec
 mean energy = 3.7500 mev. nuclides exceeding 1.0E-03 of total group release rate (3.22E+06) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 rh106 5.67E+07 3.12E+07 1.77E+07 1.00E+07 5.68E+06 3.22E+06 1.82E+06
 0 principal photon sources in group 16, photons/sec
 mean energy = 4.2500 mev. nuclides exceeding 1.0E-03 of total group release rate (1.05E-05) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 ce142 8.67E-06 8.67E-06 8.67E-06 8.67E-06 8.67E-06 8.67E-06 8.67E-06
 sm146 5.18E-08 5.35E-08 5.50E-08 5.63E-08 5.76E-08 5.87E-08 5.97E-08
 sm147 7.76E-07 1.08E-06 1.32E-06 1.51E-06 1.67E-06 1.79E-06 1.89E-06

page 52

1 principal photon sources in group 17, photons/sec
 0 mean energy = 4.7500 mev. nuclides exceeding 1.0E-03 of total group release rate (5.28E-06) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 ce142 4.35E-06 4.35E-06 4.35E-06 4.35E-06 4.35E-06 4.35E-06 4.35E-06
 sm146 2.60E-08 2.68E-08 2.76E-08 2.83E-08 2.89E-08 2.94E-08 2.99E-08
 sm147 3.89E-07 5.40E-07 6.62E-07 7.59E-07 8.37E-07 9.00E-07 9.50E-07
 0 principal photon sources in group 18, photons/sec
 mean energy = 5.5000 mev. nuclides exceeding 1.0E-03 of total group release rate (3.92E-06) at 1521.9 d
 nuclide time after discharge
 initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 ce142 3.23E-06 3.23E-06 3.23E-06 3.23E-06 3.23E-06 3.23E-06 3.23E-06
 sm146 1.93E-08 1.99E-08 2.05E-08 2.10E-08 2.14E-08 2.18E-08 2.22E-08
 sm147 2.89E-07 4.01E-07 4.91E-07 5.63E-07 6.21E-07 6.67E-07 7.05E-07

page 53

photon spectrum as a function of time for heavy metals and their daughters

ses2h: babcock wilcox 15x15, 3.00MW, 20gwd/mtu burn high temp
 power= 7.25 mw, burnup= 9280.mwd, flux= 1.68E+13 n**2-sec
 actinide photon release rates, photons/sec
 basis = single reactor assembly

mean time after discharge
 (mev) initial 304.4 d 608.8 d 913.1 d 1217.5 d 1521.9 d 1826.3 d
 1.00E-02 2.27E+17 2.10E+13 1.10E+13 8.56E+12 8.12E+12 8.22E+12 8.46E+12
 3.00E-02 1.43E+16 1.02E+11 1.46E+11 1.88E+11 2.28E+11 2.67E+11 3.04E+11
 5.50E-02 1.92E+16 1.69E+12 2.43E+12 3.15E+12 3.84E+12 4.51E+12 5.14E+12
 8.50E-02 9.08E+16 8.07E+10 8.08E+10 8.08E+10 8.08E+10 8.08E+10 8.07E+10

1.20E-01	9.33E+16	1.12E+11	1.10E+11	1.09E+11	1.08E+11	1.07E+11	1.06E+11
1.70E-01	2.97E+15	3.54E+09	2.71E+09	2.47E+09	2.39E+09	2.36E+09	2.35E+09
3.00E-01	4.92E+16	5.79E+10	5.72E+10	5.64E+10	5.57E+10	5.50E+10	5.43E+10
6.50E-01	2.59E+15	6.37E+08	4.92E+08	4.79E+08	4.79E+08	5.01E+08	5.31E+08
1.13E+00	1.13E+15	4.44E+08	4.27E+08	4.20E+08	4.18E+08	4.16E+08	4.15E+08
1.58E+00	3.91E+07	2.06E+07	1.72E+07	1.71E+07	1.79E+07	1.86E+07	1.97E+07
2.00E+00	2.22E+06	1.92E+06	1.96E+06	1.99E+06	2.03E+06	2.06E+06	2.09E+06
2.40E+00	1.45E+07	6.30E+06	3.98E+06	3.28E+06	3.02E+06	2.89E+06	2.79E+06
2.80E+00	1.95E+07	2.48E+07	3.54E+07	4.74E+07	5.92E+07	7.08E+07	8.08E+07
3.25E+00	5.18E+06	2.26E+06	1.42E+06	1.17E+06	1.08E+06	1.09E+06	1.00E+06
3.75E+00	3.00E+06	1.31E+06	8.25E+05	6.80E+05	6.27E+05	5.99E+05	5.80E+05
4.25E+00	1.74E+06	7.57E+05	4.78E+05	3.94E+05	3.63E+05	3.47E+05	3.36E+05
4.75E+00	1.01E+06	4.39E+05	2.77E+05	2.28E+05	2.10E+05	2.01E+05	1.95E+05
5.50E+00	9.10E+05	3.97E+05	2.51E+05	2.06E+05	1.90E+05	1.82E+05	1.76E+05
total	5.00E+17	2.30E+13	1.39E+13	1.21E+13	1.24E+13	1.32E+13	1.42E+13
mev/sec	4.09E+16	3.45E+11	2.87E+11	3.03E+11	3.37E+11	3.76E+11	4.14E+11

actinide energy release rates, mev/watt-sec
basis = single reactor assembly

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0
0
0

emean		time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d	
1.00E-02	3.13E+08	2.90E+04	1.52E+04	1.18E+04	1.12E+04	1.13E+04	1.17E+04	
3.00E-02	5.94E+07	4.23E+02	6.04E+02	7.78E+02	9.45E+02	1.10E+03	1.26E+03	
5.50E-02	1.46E+08	1.28E+04	1.84E+04	2.39E+04	2.91E+04	3.42E+04	3.90E+04	
8.50E-02	1.06E+09	9.47E+02	9.47E+02	9.47E+02	9.47E+02	9.47E+02	9.47E+02	
1.20E-01	1.54E+09	1.85E+03	1.82E+03	1.80E+03	1.79E+03	1.77E+03	1.76E+03	
1.70E-01	6.96E+07	8.31E+01	6.35E+01	5.79E+01	5.61E+01	5.54E+01	5.50E+01	
3.00E-01	2.04E+09	2.40E+03	2.37E+03	2.33E+03	2.31E+03	2.28E+03	2.25E+03	
6.50E-01	2.32E+08	5.71E+01	4.41E+01	4.30E+01	4.50E+01	4.76E+01	5.04E+01	
1.13E+00	1.75E+08	6.92E+01	6.62E+01	6.52E+01	6.48E+01	6.46E+01	6.44E+01	
1.58E+00	8.50E+00	4.48E+00	3.73E+00	3.71E+00	3.89E+00	4.09E+00	4.29E+00	
2.00E+00	6.11E-01	5.31E-01	5.40E-01	5.50E-01	5.59E-01	5.68E-01	5.76E-01	
2.40E+00	4.79E+00	2.09E+00	1.32E+00	1.08E+00	1.00E+00	9.57E-01	9.25E-01	
2.80E+00	7.52E+00	9.58E+00	1.37E+01	1.83E+01	2.29E+01	2.72E+01	3.10E+01	
3.25E+00	2.32E+00	1.01E+00	6.39E-01	5.26E-01	4.85E-01	4.64E-01	4.48E-01	
3.75E+00	1.56E+00	6.76E-01	4.27E-01	3.52E-01	3.24E-01	3.10E-01	3.00E-01	
4.25E+00	1.02E+00	4.44E-01	2.80E-01	2.31E-01	2.13E-01	2.04E-01	1.97E-01	
4.75E+00	6.59E-01	2.87E-01	1.82E-01	1.50E-01	1.38E-01	1.32E-01	1.28E-01	
5.50E+00	6.90E-01	3.01E-01	1.90E-01	1.57E-01	1.44E-01	1.38E-01	1.34E-01	
total	5.64E+09	4.76E+04	3.96E+04	4.17E+04	4.65E+04	5.18E+04	5.71E+04	
gamma watts	6.55E+03	5.53E-02	4.60E-02	4.85E-02	5.40E-02	6.02E-02	6.64E-02	

neutron source intensity as a function of time

page 54

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp
alpha-n neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
pb210	2.24E-15	3.18E-15	4.36E-15	5.98E-15	8.09E-15	1.08E-14	1.41E-14
bi210	5.61E-13	8.11E-13	1.11E-12	1.53E-12	2.07E-12	2.75E-12	3.60E-12
bi211	8.13E-04	1.41E-03	1.93E-03	2.45E-03	2.96E-03	3.47E-03	3.98E-03
bi212	3.78E-01	7.42E-01	1.17E+00	1.61E+00	2.03E+00	2.43E+00	2.78E+00
bi213	9.63E-07	1.79E-07	1.96E-07	2.14E-07	2.32E-07	2.50E-07	2.70E-07
bi214	3.35E-09	4.84E-09	6.72E-09	9.00E-09	1.17E-08	1.47E-08	1.82E-08
po210	4.43E-07	7.84E-07	1.11E-06	1.54E-06	2.09E-06	2.81E-06	3.72E-06
po211	3.22E-06	5.58E-06	7.64E-06	9.69E-06	1.17E-05	1.37E-05	1.57E-05
po212	1.94E+00	3.80E+00	5.97E+00	8.22E+00	1.04E+01	1.24E+01	1.42E+01
po213	1.27E-04	2.36E-05	2.59E-05	2.82E-05	3.06E-05	3.30E-05	3.56E-05

po214	7.16E-05	4.31E-05	5.99E-05	8.01E-05	1.04E-04	1.31E-04	1.62E-04
po215	1.15E-03	1.99E-03	2.73E-03	3.46E-03	4.18E-03	4.90E-03	5.62E-03
po216	1.51E+00	2.96E+00	4.66E+00	6.42E+00	8.12E+00	9.69E+00	1.11E+01
po218	1.42E-05	2.05E-05	2.85E-05	3.81E-05	4.94E-05	6.24E-05	7.70E-05
at217	8.23E-05	1.53E-05	1.68E-05	1.83E-05	1.98E-05	2.14E-05	2.31E-05
m218	3.40E-05	1.34E-09	5.25E-14	2.07E-18	8.12E-23	2.73E-27	.00E+00
m219	9.14E-04	1.58E-03	2.17E-03	2.75E-03	3.33E-03	3.90E-03	4.47E-03
m220	1.20E+00	2.35E+00	3.69E+00	5.08E+00	6.43E+00	7.68E+00	8.80E+00
m222	1.04E-05	1.50E-05	2.08E-05	2.78E-05	3.61E-05	4.55E-05	5.62E-05
fr221	6.01E-05	1.12E-05	1.22E-05	1.33E-05	1.45E-05	1.56E-05	1.68E-05
fr223	3.77E-10	5.99E-10	8.21E-10	1.04E-09	1.26E-09	1.47E-09	1.69E-09
ra222	2.63E-05	1.03E-09	4.06E-14	1.60E-18	6.28E-23	2.47E-27	.00E+00
ra223	5.25E-04	9.17E-04	1.26E-03	1.59E-03	1.92E-03	2.26E-03	2.59E-03
ra224	8.46E-01	1.66E+00	2.61E+00	3.59E+00	4.54E+00	5.43E+00	6.22E+00
ra226	6.05E-06	8.78E-06	1.22E-05	1.63E-05	2.11E-05	2.66E-05	3.29E-05
ac225	4.32E-05	8.04E-06	8.79E-06	9.58E-06	1.04E-05	1.12E-05	1.21E-05
ac227	4.24E-06	6.75E-06	9.24E-06	1.17E-05	1.42E-05	1.66E-05	1.90E-05
ac228	2.26E-17	3.90E-17	6.02E-17	8.56E-17	1.15E-16	1.48E-16	1.83E-16
th226	2.37E-05	9.33E-10	3.67E-14	1.44E-18	5.67E-23	2.23E-27	.00E+00
th227	6.03E-04	1.01E-03	1.39E-03	1.78E-03	2.12E-03	2.49E-03	2.85E-03
th228	7.10E-01	1.40E+00	2.20E+00	3.02E+00	3.82E+00	4.59E+00	5.23E+00
th229	4.27E-06	4.70E-06	5.14E-06	5.60E-06	6.07E-06	6.56E-06	7.07E-06
th230	6.02E-03	7.82E-03	9.62E-03	1.14E-02	1.32E-02	1.51E-02	1.69E-02
th232	2.05E-09	2.89E-09	3.73E-09	4.56E-09	5.40E-09	6.24E-09	7.07E-09
pa231	7.88E-03	8.05E-03	8.19E-03	8.34E-03	8.49E-03	8.63E-03	8.78E-03
u230	1.87E-05	7.34E-10	2.89E-14	1.13E-18	4.46E-23	1.76E-27	.00E+00
u231	7.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	2.49E+00	3.65E+00	4.59E+00	5.35E+00	5.98E+00	6.44E+00	6.83E+00
u233	4.96E-03	5.16E-03	5.35E-03	5.55E-03	5.74E-03	5.94E-03	6.14E-03
u234	2.52E+02	2.52E+02	2.53E+02	2.54E+02	2.54E+02	2.55E+02	2.55E+02
u235	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00
u236	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01
u238	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01
np235	3.81E-05	2.24E-05	1.31E-05	7.71E-06	4.53E-06	2.66E-06	1.56E-06
np237	4.24E+01	4.31E+01	4.31E+01	4.31E+01	4.31E+01	4.32E+01	4.32E+01
p236	2.11E+02	1.74E+02	1.42E+02	1.17E+02	9.55E+01	7.82E+01	6.41E+01
p237	4.58E-03	4.30E-05	4.02E-07	3.77E-09	3.53E-11	3.31E-13	3.10E-15
p238	4.11E+05	4.39E+05	4.43E+05	4.43E+05	4.40E+05	4.38E+05	4.35E+05

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neutron source intensity as a function of time

page 55

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gcl/mtu burn high temp
alpha-n neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
p239	1.10E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05
p240	1.05E+05	1.05E+05	1.05E+05	1.05E+05	1.05E+05	1.05E+05	1.05E+05
p241	5.52E+02	5.34E+02	5.13E+02	4.93E+02	4.73E+02	4.54E+02	4.37E+02
p242	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02
p244	8.07E-15	2.77E-14	4.74E-14	6.71E-14	8.68E-14	1.06E-13	1.26E-13
an239	3.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an240	5.15E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
an241	5.04E+04	9.75E+04	1.43E+05	1.89E+05	2.28E+05	2.67E+05	3.06E+05
an242m	1.46E+01	1.45E+01	1.45E+01	1.44E+01	1.44E+01	1.43E+01	1.42E+01
an243	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03
cn241	1.15E-04	1.85E-07	2.97E-10	4.78E-13	7.70E-16	1.24E-18	1.99E-21
cn242	1.05E+07	2.85E+06	7.94E+05	2.21E+05	6.37E+04	2.07E+04	8.87E+03
cn243	3.38E+03	3.32E+03	3.25E+03	3.18E+03	3.12E+03	3.06E+03	3.00E+03

cm244	1.30E+05	1.26E+05	1.22E+05	1.18E+05	1.14E+05	1.11E+05	1.07E+05
cm245	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00
cm246	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01
cm247	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06
cm248	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06
cm250	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14
bk249	2.95E-07	1.53E-07	7.90E-08	4.09E-08	2.11E-08	1.09E-08	5.65E-09
cf249	1.29E-05	4.70E-05	6.45E-05	7.35E-05	7.81E-05	8.04E-05	8.16E-05
cf250	2.27E-04	2.18E-04	2.09E-04	2.00E-04	1.91E-04	1.83E-04	1.75E-04
cf251	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.44E-06	1.44E-06	1.44E-06
cf252	1.66E-04	1.34E-04	1.07E-04	8.63E-05	6.94E-05	5.58E-05	4.48E-05
cf253	2.36E-08	1.69E-13	1.22E-18	8.73E-24	6.27E-29	.00E+00	.00E+00
cf254	2.47E-12	7.55E-14	2.31E-15	7.05E-17	2.16E-18	6.60E-20	2.02E-21
es253	7.86E-06	2.07E-09	8.24E-14	2.85E-18	9.62E-23	3.21E-27	.00E+00
es254	9.36E-09	4.35E-09	2.03E-09	9.42E-10	4.38E-10	2.04E-10	9.48E-11
es255	9.38E-11	4.21E-13	1.88E-15	8.42E-18	3.77E-20	1.68E-22	7.53E-25
total	1.13E+07	3.77E+06	1.72E+06	1.19E+06	1.07E+06	1.06E+06	1.08E+06

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neutron source intensity as a function of time

page 56

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sas2h: babcock wilcox 15x15, 3.00McK, 20gwd/mtu burn high temp
spontaneous fission neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
th230	1.55E-07	2.01E-07	2.47E-07	2.93E-07	3.40E-07	3.86E-07	4.33E-07
pa231	9.88E-07	1.01E-06	1.03E-06	1.05E-06	1.06E-06	1.08E-06	1.10E-06
u232	1.53E-04	2.24E-04	2.82E-04	3.29E-04	3.66E-04	3.96E-04	4.19E-04
u234	5.42E-01	5.43E-01	5.44E-01	5.46E-01	5.47E-01	5.48E-01	5.50E-01
u235	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02
u236	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00
u237	3.03E-06	1.95E-11	1.88E-11	1.80E-11	1.73E-11	1.66E-11	1.60E-11
u238	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03
u239	1.66E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08
np238	9.14E-06	4.27E-12	4.25E-12	4.23E-12	4.22E-12	4.20E-12	4.18E-12
np239	3.38E-02	1.56E-08	1.56E-08	1.56E-08	1.56E-08	1.56E-08	1.56E-08
pl236	1.43E+01	1.17E+01	9.63E+00	7.89E+00	6.46E+00	5.30E+00	4.34E+00
pl238	7.59E+04	8.10E+04	8.15E+04	8.17E+04	8.13E+04	8.08E+04	8.03E+04
pl239	5.91E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01
pl240	6.96E+05	6.96E+05	6.96E+05	6.96E+05	6.96E+05	6.96E+05	6.96E+05
pl241	2.00E+01	1.92E+01	1.86E+01	1.77E+01	1.70E+01	1.64E+01	1.57E+01
pl242	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05
pl243	6.67E-04	7.45E-17	7.45E-17	7.45E-17	7.45E-17	7.45E-17	7.45E-17
pl244	1.98E-09	6.64E-09	1.13E-08	1.60E-08	2.08E-08	2.59E-08	3.02E-08
am241	1.94E+01	3.75E+01	5.49E+01	7.14E+01	8.76E+01	1.03E+02	1.18E+02
am242m	6.94E+01	6.91E+01	6.88E+01	6.86E+01	6.83E+01	6.80E+01	6.77E+01
am242	2.67E+02	7.51E-02	7.48E-02	7.44E-02	7.41E-02	7.38E-02	7.35E-02
am243	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00
am244	6.80E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm242	5.22E+07	1.44E+07	3.97E+06	1.10E+06	3.18E+05	1.03E+05	4.43E+04
cm243	7.35E+01	7.20E+01	7.06E+01	6.91E+01	6.78E+01	6.64E+01	6.51E+01
cm244	1.69E+07	1.64E+07	1.59E+07	1.54E+07	1.49E+07	1.44E+07	1.40E+07
cm245	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00
cm246	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
cm248	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01
cm250	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05
bk249	1.63E-03	8.42E-04	4.35E-04	2.25E-04	1.16E-04	6.03E-05	3.12E-05
cf249	7.83E-06	2.86E-05	3.92E-05	4.47E-05	4.75E-05	4.89E-05	4.96E-05

ef250	4.90E+04	4.02E+04	4.75E+04	4.67E+04	4.60E+04	4.53E+04	4.47E+04
cf252	5.82E+02	4.68E+02	3.76E+02	3.02E+02	2.43E+02	1.95E+02	1.57E+02
cf254	1.00E-01	3.24E-05	9.91E-05	3.03E-06	9.27E-08	2.83E-09	8.67E-11
es253	5.85E-05	1.54E-08	6.13E-13	2.12E-17	7.16E-22	2.40E-26	8.03E-31
es255	2.70E-07	1.21E-09	5.42E-12	2.42E-14	1.08E-16	4.85E-19	2.17E-21
0 total	7.00E+07	3.18E+07	2.08E+07	1.74E+07	1.62E+07	1.55E+07	1.50E+07

0 total	8.13E+07	3.55E+07	2.25E+07	1.86E+07	1.72E+07	1.65E+07	1.60E+07

page 57

alpha-n neutron source spectrum as a function of time
(using reaction spectra for uranium dioxide)

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20g/cm³ mtu burn high temp
alpha-n neutron spectra, neutrons/sec/basis
basis = single reactor assembly

boundaries, mev	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1 6.43E+00 - 2.00E+01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
2 3.00E+00 - 6.43E+00	4.957E+06	1.553E+06	6.080E+05	3.276E+05	2.468E+05	2.269E+05	2.256E+05
3 1.85E+00 - 3.00E+00	5.320E+06	1.812E+06	8.610E+05	6.208E+05	5.717E+05	5.719E+05	5.845E+05
4 1.40E+00 - 1.85E+00	7.028E+05	2.721E+05	1.616E+05	1.423E+05	1.442E+05	1.490E+05	1.538E+05
5 9.00E-01 - 1.40E+00	2.409E+05	1.072E+05	7.589E+04	7.450E+04	7.877E+04	8.248E+04	8.549E+04
6 4.00E-01 - 9.00E-01	3.964E+04	2.217E+04	1.912E+04	2.061E+04	2.248E+04	2.376E+04	2.468E+04
7 1.00E-01 - 4.00E-01	7.422E+03	3.854E+03	3.159E+03	3.328E+03	3.608E+03	3.798E+03	3.941E+03
8 1.70E-02 - 1.00E-01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
9 3.00E-03 - 1.70E-02	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
10 5.50E-04 - 3.00E-03	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
11 1.00E-04 - 5.50E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
12 3.00E-05 - 1.00E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
13 1.00E-05 - 3.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
14 3.05E-06 - 1.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
15 1.77E-06 - 3.05E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
16 1.30E-06 - 1.77E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
17 1.13E-06 - 1.30E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
18 1.00E-06 - 1.13E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
19 8.00E-07 - 1.00E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
20 4.00E-07 - 8.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
21 3.25E-07 - 4.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
22 2.25E-07 - 3.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
23 1.00E-07 - 2.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
24 5.00E-08 - 1.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
25 3.00E-08 - 5.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
26 1.00E-08 - 3.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
27 1.00E-11 - 1.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
0	1.127E+07	3.770E+06	1.724E+06	1.189E+06	1.067E+06	1.058E+06	1.078E+06

page 58

spontaneous fission neutron source spectrum as a function of time

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20g/cm³ mtu burn high temp
spontaneous fission neutron spectra, neutrons/sec/basis
basis = single reactor assembly

boundaries, mev	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1 6.43E+00 - 2.00E+01	1.333E+06	6.018E+05	3.925E+05	3.284E+05	3.043E+05	2.913E+05	2.817E+05
2 3.00E+00 - 6.43E+00	1.467E+07	6.651E+06	4.357E+06	3.653E+06	3.387E+06	3.244E+06	3.136E+06
3 1.85E+00 - 3.00E+00	1.595E+07	7.218E+06	4.717E+06	3.951E+06	3.662E+06	3.507E+06	3.397E+06
4 1.40E+00 - 1.85E+00	9.080E+06	4.131E+06	2.713E+06	2.278E+06	2.114E+06	2.025E+06	1.958E+06
5 9.00E-01 - 1.40E+00	1.246E+07	5.662E+06	3.718E+06	3.121E+06	2.895E+06	2.773E+06	2.681E+06

0 8.131E+07 3.552E+07 2.252E+07 1.862E+07 1.723E+07 1.654E+07 1.684E+07

1 * gamma sources determined *

0 case applies the following photon data base
 master photon library
 in binary mode

0 the sources include photons of nuclides for...

Light elements
 actinides
 fission products

1 gamma source spectrum for gamma lines (sas2)
 0 1826.25 day time of the requested nuclides
 0 energy interval in mev photons / second mev / second
 0

1.000E-02 to	5.000E-02	6.8561E+14	2.0568E+13
5.000E-02 to	1.000E-01	2.0908E+14	1.5231E+13
1.000E-01 to	2.000E-01	1.6111E+14	2.4167E+13
2.000E-01 to	3.000E-01	4.5083E+13	1.1271E+13
3.000E-01 to	4.000E-01	3.1358E+13	1.0975E+13
4.000E-01 to	6.000E-01	2.2631E+14	1.1315E+14
6.000E-01 to	8.000E-01	1.0168E+15	7.1177E+14
8.000E-01 to	1.000E+00	9.6947E+13	8.7252E+13
1.000E+00 to	1.390E+00	3.6226E+13	4.2204E+13
1.390E+00 to	1.660E+00	7.9534E+12	1.1860E+13
1.660E+00 to	2.000E+00	4.3816E+11	8.0183E+11
2.000E+00 to	2.500E+00	1.1466E+12	2.5799E+12
2.500E+00 to	3.000E+00	3.0775E+10	8.4631E+10
3.000E+00 to	4.000E+00	3.7983E+09	1.3294E+10
4.000E+00 to	5.000E+00	5.2258E+05	2.3516E+06
5.000E+00 to	6.500E+00	2.0954E+05	1.2048E+06
6.500E+00 to	8.000E+00	4.1069E+04	2.9775E+05
8.000E+00 to	1.000E+01	8.7149E+03	7.8434E+04
totals		2.5121E+15	1.0519E+15

0 total energy from nuclides with spectrum data = 1.0519E+15
 0 total energy from nuclides with no spectrum data = 6.4491E+09

1 .results on logical unit no. 71, position 2, for time step 6, subcase10. (run position 1, case position 2)

0 title: sas2h: babcock wilcox 15x15, 3.00wt%, 20g/mtu burn high temp

0 terminated logical unit no. 71 with zero flag record.

1 * normal termination of execution *

0 table of contents for material tables
 0 case or subcase printed page

1	1
2	3
3	6
4	9
5	12
6	15
7	18
8	21
9	24
10	27

Ordbet	33	4	1	27	6	0	0	0	0	0
33	0	0	0	0	0	2	-1	1698	690	130
880	7935	0	0	5	99	2	16	96	18	18
16	0	0	71							

```

0 56q array has 20 entries.
0 57q array has 3 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
L90 87162
L116 49981
L32 33665 rucdata (library) storage size
L44 33734
L103 65583
0 60q array has 1 entries.
0 61q array has 7 entries.
0 65q array has 63 entries.
0 73q array has 4 entries.
0 74q array has 4 entries.
0 75q array has 4 entries.
L140 55777
used 88136 in size 200000
Ojopt 12
5 0 0 0 0 0 0 0 0 0 0
0 0
Otherm 4
5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
Omn 5
7935 20 6 18 1697
Omm 19 1 0 0 1 -1 0 0 0 0
21 100 4 4 3 0 4 0 0
Otcnst 5
8.640000E+04 1.000000E-20 .000000E+00 .000000E+00 1.000000E-08
Omzero 4
0 689 129 879
Opow 3
.000000E+00 .000000E+00 .000000E+00
O linp 9
6 0 51 26 2 3000 1000 1697 94
0 case or subcase 1 sas2h: babcock wilcox 15x15, 3.00wt%, 20g/d/mtu burn high temp
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 4 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
L90 93972
L116 57212
L32 33665 rucdata (library) storage size
L44 33734
L103 72497
0 58q array has 5 entries.
0 60q array has 5 entries.
0 66q array has 1 entries.
0 73q array has 4 entries.
0 74q array has 4 entries.
0 75q array has 4 entries.
L140 63587
used 96742 in size 200000

```

```

Ojopt      12
           5 0 0 0 0 0 0 0 0 0
           0 0 0
Otherm     4
5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
Onon       5
7935 20 6 18 1697
Omm        19
           5 0 0 1 3 0 0 0 0
           21 100 4 4 3 74 4 1 0
Otoconst  5
8.640000E+04 1.000000E-20 5.000000E+00 .000000E+00 1.000000E-08
Onzero     4
12 689 129 879
Opcw       3
.000000E+00 .000000E+00 .000000E+00
Olip       9
           6 0 51 26 2 3000 1000 1697 94
n-gamma, fission and total mev/fission = 4.4180E+00 1.9429E+02 1.9871E+02
start of interval flux = 1.71666E+13
n-gamma, fission and total mev/fission = 4.8296E+00 1.9446E+02 1.9929E+02
start of interval flux = 1.70887E+13
n-gamma, fission and total mev/fission = 4.9247E+00 1.9462E+02 1.9955E+02
start of interval flux = 1.69221E+13
n-gamma, fission and total mev/fission = 5.0218E+00 1.9477E+02 1.9980E+02
start of interval flux = 1.68318E+13
n-gamma, fission and total mev/fission = 5.1227E+00 1.9491E+02 2.0004E+02
start of interval flux = 1.67630E+02
0 case or subcase 2 sas2h: babcock wilcox 15x15, 3.00wt%, 20gud/mtu burn high temp
Orcbet     33
           33 4 2 27 6 0 0 0 0 0
           0 0 0 0 0 2 -1 1698 690 130
           880 7935 0 5 99 2 16 96 18 18
           18 0 71
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 4 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
l90 93972
l116 57212
l32 33663 rucdata (library) storage size
l44 33734
l103 72497
0 58q array has 5 entries.
0 60q array has 5 entries.
0 66q array has 1 entries.
l140 63587
used 96742 in size 200000
Ojopt      12
           5 0 0 0 0 0 0 0 0 0
           0 0 0
Otherm     4
5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31

```

```

Onon      5
          7935      20      6      18      1697
Omm       19
          5      5      0      0      1      3      0      0      0      5
          21      100      0      4      3      74      4      1      0
Otoconst  5
          8.640000E+04 1.600064E+02 2.900000E+01 .000000E+00 1.000000E-08
Onzero    4
          16      689      129      879
Qpaw      3
          7.250000E+00 1.159999E+03 1.694262E+13
O lrp     9
          6      0      51      26      2      3000      1000      1697      94
n-gamma, fission and total mev/fission = 5.2408E+00 1.9492E+02 2.0016E+02
start of interval flux = 1.65204E+13
n-gamma, fission and total mev/fission = 5.3397E+00 1.9505E+02 2.0039E+02
start of interval flux = 1.64592E+13
n-gamma, fission and total mev/fission = 5.4422E+00 1.9518E+02 2.0062E+02
start of interval flux = 1.64118E+13
n-gamma, fission and total mev/fission = 5.5462E+00 1.9530E+02 2.0085E+02
start of interval flux = 1.63779E+13
n-gamma, fission and total mev/fission = 5.6512E+00 1.9542E+02 2.0107E+02
start of interval flux = 1.63559E+02
O case or subcase 3 sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp
Orcbet    33
          33      4      3      27      6      0      0      0      0      0
          0      0      0      0      0      2      -1      1698      690      130
          880      7935      0      5      99      2      16      96      18      18
          18      0      71
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 4 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
190 93972
1116 57212
132 33663 nadata (library) storage size
144 33734
1103 72497
0 58q array has 5 entries.
0 60q array has 5 entries.
0 66q array has 1 entries.
1140 63587
used 96742 in size 200000
Ojopt     12
          5      0      0      0      0      0      0      0      0      0
          0      0
Othem     4
          5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
Onon      5
          7935      20      6      18      1697
Omm       19
          5      5      0      0      1      3      0      0      0      5
          21      100      0      4      3      74      4      1      0

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```

Otcnst      5
8.640000E+04 3.200192E+02 2.600000E+01 .000000E+00 1.000000E-08
Omzero      4
16      689      129      879
Qpcw        3
7.250000E+00 2.319985E+03 1.642759E+13
0 lirr      9
6      0      51      26      2      3000      1000      1697      94
n-gamma, fission and total mev/fission = 5.7355E+00 1.9541E+02 2.0115E+02
start of interval flux = 1.6187E+13
n-gamma, fission and total mev/fission = 5.8525E+00 1.9552E+02 2.0136E+02
start of interval flux = 1.61661E+13
n-gamma, fission and total mev/fission = 5.9553E+00 1.9563E+02 2.0157E+02
start of interval flux = 1.61526E+13
n-gamma, fission and total mev/fission = 6.0583E+00 1.9574E+02 2.0178E+02
start of interval flux = 1.61473E+13
n-gamma, fission and total mev/fission = 6.1413E+00 1.9584E+02 2.0198E+02
start of interval flux = 1.61442E-02
0 case or subcase 4 sas2h: babcock wilcock 15x15, 3.00wt%, 20guc/mtu burn high temp
Ondset      33
33      4      4      27      6      0      0      0      0      0
0      0      0      0      0      2      -1      1698      690      130
880      7935      0      5      99      2      16      96      18      18
18      0      71
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 4 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
L90 93972
L116 57212
L32 33663 nucdata (library) storage size
L44 33734
L103 72497
0 58q array has 5 entries.
0 60q array has 5 entries.
0 66q array has 1 entries.
L140 63587
used 96742 in size 200000
Ojopt      12
5      0      0      0      0      0      0      0      0      0
0      0
Otherm      4
5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
Onon        5
7935      20      6      18      1697
Omn         19
5      5      0      0      1      3      0      0      0      5
21      100      0      4      3      74      4      1      0
Otcnst      5
8.640000E+04 4.800385E+02 2.900000E+01 .000000E+00 1.000000E-08
Omzero      4
16      689      129      879
Qpcw        3

```

```

7.249999E+00 3.479978E+03 1.616451E+13
0 lirr 9
      6      0      51      26      2      3000      1000      1697      94
n-gamma, fission and total mev/fission = 6.1975E+00 1.9583E+02 2.0203E+02
start of interval flux = 1.60283E+13
n-gamma, fission and total mev/fission = 6.2896E+00 1.9593E+02 2.0222E+02
start of interval flux = 1.60310E+13
n-gamma, fission and total mev/fission = 6.3902E+00 1.9602E+02 2.0241E+02
start of interval flux = 1.60378E+13
n-gamma, fission and total mev/fission = 6.4905E+00 1.9612E+02 2.0261E+02
start of interval flux = 1.60502E+13
n-gamma, fission and total mev/fission = 6.5905E+00 1.9621E+02 2.0280E+02
start of interval flux = 1.60574E+02
0 case or subcase 5 sas2h: babcock wilcox 15x15, 3.00w0%, 20gud/mtu burn high temp
Ordsset 33
      33      4      5      27      6      0      0      0      0      0
      0      0      0      0      0      2      -1      1698      690      130
      880      7935      0      5      99      2      16      96      18      18
      18      0      71
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 4 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
190 93972
1116 57212
132 33663 nrdata (library) storage size
144 33734
1103 72497
0 58q array has 5 entries.
0 60q array has 5 entries.
0 66q array has 1 entries.
1140 63587
used 96742 in size 200000
Ojopt 12
      5      0      0      0      0      0      0      0      0      0
      0      0
Othern 4
5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
Onon 5
      7935      20      6      18      1697
Omn 19
      5      5      0      0      1      3      0      0      0      5
      21      100      0      4      3      74      4      1      0
Otoconst 5
8.640000E+04 6.400641E+02 2.900000E+01 .000000E+00 1.000000E-08
Onzero 4
      16      689      129      879
Opcw 3
7.250002E+00 4.639970E+03 1.604761E+13
0 lirr 9
      6      0      51      26      2      3000      1000      1697      94
n-gamma, fission and total mev/fission = 6.6274E+00 1.9620E+02 2.0283E+02
start of interval flux = 1.59778E+13

```

n-gamma, fission and total mev/fission = 6.7144E+00 1.9629E+02 2.0800E+02
 start of interval flux = 1.59963E+13
 n-gamma, fission and total mev/fission = 6.8126E+00 1.9637E+02 2.0819E+02
 start of interval flux = 1.60171E+13
 n-gamma, fission and total mev/fission = 6.9104E+00 1.9646E+02 2.0837E+02
 start of interval flux = 1.60417E+13
 n-gamma, fission and total mev/fission = 7.0078E+00 1.9654E+02 2.0855E+02
 start of interval flux = 1.60697E+02

0 case or subcase 6 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
 Ordbet 33

	33	4	6	27	6	0	0	0	0	0
	0	0	0	0	0	2	-1	1698	690	130
	880	7925	0	5	99	2	16	96	18	18
	18	0	71							

0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 57q array has 4 entries.
 0 1q array has 20 entries.
 0 1q array has 10 entries.

190 9972
 1116 57212
 132 33663 rucdata (library) storage size
 144 33734
 1103 72497

0 58q array has 5 entries.
 0 60q array has 5 entries.
 0 66q array has 1 entries.
 1140 63587

used 96742 in size 200000

Ojopt	12									
	5	0	0	0	0	0	0	0	0	0
	0	0								

Othem 4
 5.09167E-01 3.60448E-01 2.731459E+00 1.00000E-31

Onon 5
 7925 19 20 6 18 1697

Onm	5	5	0	0	1	3	0	0	0	5
	21	100	0	4	3	74	4	1	0	

Otoconst 5
 8.64000E+04 8.00096E+02 2.80000E+01 .00000E+00 1.00000E-08

Onzero 4
 16 689 129 879

Opow 3
 7.25000E+00 5.79963E+03 1.60251E+13

0 lirr 9
 6 0 51 26 2 3000 1000 1697 94

n-gamma, fission and total mev/fission = 7.0820E+00 1.9653E+02 2.0856E+02
 start of interval flux = 1.60012E+13
 n-gamma, fission and total mev/fission = 7.1140E+00 1.9661E+02 2.0872E+02
 start of interval flux = 1.60313E+13
 n-gamma, fission and total mev/fission = 7.2102E+00 1.9669E+02 2.0890E+02
 start of interval flux = 1.60621E+13
 n-gamma, fission and total mev/fission = 7.3057E+00 1.9677E+02 2.0407E+02

start of interval flux = 1.60956E+13
 n-gamma, fission and total mev/fission = 7.4007E+00 1.9684E+02 2.0424E+02
 start of interval flux = 1.61315E-02
 0 case or subcase 7 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

Ordsbt	33	4	7	27	6	0	0	0	0	0
	0	0	0	0	0	2	-1	1698	690	130
	880	7935	0	5	99	2	16	96	18	18
	18	0	71							

- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 56q array has 1 entries.
- 0 57q array has 4 entries.
- 0 1q array has 20 entries.
- 0 1q array has 10 entries.

L90 93972
 L116 57212
 L32 33663 rucdata (library) storage size
 L44 33734
 L103 72497

- 0 58q array has 5 entries.
- 0 60q array has 5 entries.
- 0 66q array has 1 entries.

L140 63587
 used 96742 in size 200000

Ojopt	12	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0
	0	0								

Otherm 4
 5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31

Onon	5	20	6	18	1697					
Omm	7935	19	5	0	0	1	3	0	0	5
	5	5	0	0	0	1	3	0	0	5
	21	100	0	4	4	3	74	4	1	0

Otoconst 5
 8.640000E+04 9.601346E+02 2.900000E+01 .000000E+00 1.000000E-08

Ozero	4	689	129	879						
	16	4	689	129	879					

Opow 3
 7.250001E+00 6.999956E+03 1.60958E+13

O lrp	9	0	51	26	2	3000	1000	1697	94	
	6	0	51	26	2	3000	1000	1697	94	

n-gamma, fission and total mev/fission = 7.4172E+00 1.9683E+02 2.0425E+02
 start of interval flux = 1.60782E+13
 n-gamma, fission and total mev/fission = 7.4945E+00 1.9691E+02 2.0440E+02
 start of interval flux = 1.61169E+13
 n-gamma, fission and total mev/fission = 7.5889E+00 1.9698E+02 2.0457E+02
 start of interval flux = 1.61552E+13
 n-gamma, fission and total mev/fission = 7.6825E+00 1.9705E+02 2.0473E+02
 start of interval flux = 1.61953E+13
 n-gamma, fission and total mev/fission = 7.7755E+00 1.9712E+02 2.0490E+02
 start of interval flux = 1.62371E-02

0 case or subcase 8 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
 Ordsbt 33

0 56q array has 1 entries.
 0 57q array has 4 entries.
 0 1q array has 20 entries.
 0 1q array has 10 entries.
 l90 95662
 l116 59001
 l32 33663 rucdata (library) storage size
 l44 33734
 l103 74213

0 60q array has 6 entries.
 0 66q array has 1 entries.
 0 61q array has 7 entries.
 0 65q array has 63 entries.
 0 81q array has 4 entries.
 0 82q array has 6 entries.
 0 83q array has 19 entries.

l140 80695
 used 98881 in size 200000

0jopt 12
 5 0 0 0 0 0 0 0 0 0
 0 0

Otherm 4
 5.134401E-01 4.563286E-01 3.548801E+00 1.000000E-31

Onon 5
 7935 20 6 18 1697

Onnn 19
 0 6 0 0 5 1 0 0 4
 21 100 0 4 3 74 2 1 0

Otoconst 5
 8.640000E+04 1.000000E-19 2.900000E+01 .000000E+00 1.000000E-03

Onzero 4
 15 689 129 879

Opow 3
 7.250000E+00 9.279940E+03 1.626613E+13

0 linp 9
 6 2 51 26 1 18418 1000 1697 94

0 case or subcase 10 sas2h: babcock wilcox 15x15, 3.00wt%, 20gdc/mtu burn high temp
 0 56q array has 20 entries.
 0 56q array has 1 entries.
 0 56q array has 1 entries.
 0 56q array has 20 entries.

Onrequested parm=halt8, skipcellwt, skipshipdata
 pass= 9, exec halts after pass 8

1
 0 *****
 0 *****

0 information on the origins library produced

0
 0 dataset name: ft33f001
 0 logical unit number: 33
 0 number of records: 68

0 *****
 0 *****

0.....
 0 halt feature invokes stop 0

```

0*****
*
*           scale4.2  bulletin  board
*           -----
*
*  welcome to the configuration controlled version of scale4.2.
*  any problems should be reported to kay martin at 4-9213.
*
*  updates that have been made from version 4.1 to 4.2 include:
*
*  nitawl:  parameter added to prevent exponent underflows for very
*  dilute resonance calculations on workstation. (mrr 93-011)
*
*  nitawl:  corrected discrepancies in maximum fractional energy loss
*  of neutron in admixed moderator calculation and simpson rule
*  calculation of collision density as documented in "improved
*  calculation of flux shapes with the resonance shielding code
*  nitawl", by j. oppe, ecn-i--93-003. affects all calculations.
*  impact will vary, but is insignificant for hydrogen-moderated
*  systems. (mrr 93-030)
*
*  sas4:  added option of axial source profile input for both radial
*  and axial dose calculations. also added option idr = 2 for
*  estimation to point detectors from collisions in both top and
*  bottom halves of geometry. (mrr 92-016)
*
*  morse:  modifications made for compatibility with the new options in
*  sas4 (i.e., the axial source profile input option and
*  the option idr = 2 for estimation to point detectors from collisions
*  in both top and bottom halves of geometry). (mrr 92-016)
*
*  csas & keno-v.a:  error checking during input processing was added
*  so that these modules terminate with an error message if input
*  errors are encountered. (mrr 93-013, 93-014, 93-015, 93-018)
*
*  keno-v.a:  corrections made for applying differential albedo
*  boundary conditions to supergrouped problems where global unit
*  contains only an array specification. effect on keff is very large
*  for this type of problem. (mrr 93-033)
*
*  keno-v.a:  corrected an error introduced with modification on may 24,
*  1993 (mrr 93-033). this error affected problems with mirror or
*  periodic boundary conditions and could cause problem to loop, fail,
*  or run incorrectly.
*
*  xsdrnpm:  corrected calculation of number of direct access data
*  blocks needed to weight the cross sections to prevent occasional
*  failure. improved calculation of balance tables. (mrr 93-021)
*
*  origen-s:  modified program to read combined binary libraries that
*  include multi-cycle cross sections. add option to edit binary
*  library. (mrr 93-026)
*
*  sas2:  modified to produce combined binary libraries for origen-s.
*  (mrr 93-027)
*
*  couple:  modified to allow combined binary libraries to be made by
*  sas2. (mrr 93-031)
*
*  origen-s couple, sas2:  modified programs to accept the new updated

```

```

* and expanded decay data and fission product yield libraries. (mrr
* 92-088, 92-025, 92-026)
*
* origen-s libraries: the six standard origen-s card image libraries
* have been replaced by two new libraries, end6dec and xsectpho.
* end6dec contains the updated and expanded decay data library based
* on endf/b-vi data. xsectpho contains the basic cross section and
* photon spectra data and updated fission product yield data based on
* endf/b-v data. (drr 92-006, 007, 008, 009, 010, and drr 93-001,
* 002, 003, 006, 008, 009)
*
* std. comp. library: in drr 92-033, the following nuclides were
* changed to turn on resonance processing flag but should not have
* been changed: niss, fess, mnss, crss, niinconel, crinconel,
* feinconel. flags for these nuclides have now been returned to off.
* (drr 93-014)
*
* heating7: replaced heating6 with version 7.2. (mrr 93-038)
*
* htas1: updated for compatibility with heating7 and to interact
* effectively with ocular. fin effectiveness technique was added.
* (mrr 93-036)
*
* ocular: made compatible with heating7 and htas1 on mainframe and
* workstation. (mrr 93-037)
*
* sas2: corrected so that 'parm=skipshipdata' would work on
* workstation. (mrr 93-051)
*
* aim: ft47ft001 is no longer require for aim to execute on
* workstation. (mrr 93-052)
*
* 27group, 27burnup, and 218group - these libraries have been
* updated to correct an error found in the chlorine cross-sections.
* (drr93-022)
*
* bonami: corrected so that a case with a number density of zero
* for a nuclide that has bondarenko data will run without failing.
* (mrr 93-060)
*
* csas: corrected calculation of dancoff correction factor for
* cylindrical cells. note that previous calculations of small
* cylindrical cells (o.d. < 0.3 cm) gave non-conservative keff
* values. also corrected dancoff factor for multiregion slab
* cell with vacuum boundary conditions to be set to zero.
* (mrr 93-065)
*
* csas, sas1, sas2, sas3, sas4: error in miplib was corrected. for
* resonance materials that are not part of the unit cell in lattice-
* cell or multiregion problems, the dancoff factor defaulted to -1.
* check your nitawl output in any previous scale-4.2 calculations
* for dancoff factors =-1.
* (mrr 93-070)
*

```

```

*****
1 primary module access and input record ( scale driver - 10/01/86 - 14:00 )
- module origins will be called
  0$$ a8 26 a11 71 e
  1$$ 1 1t
  b&w 15x15, 3.0%/20 Decay

```

```

3$$ 21 0 1 e
/ 3$$ 21 0 1 a33 -88
2t
35$$ 0 t
/ 54$$ a8 1 e
/ 56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e 5t
56$$ 0 7 a13 -1 a15 3 0 4 e 5t
Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
per B&W assembly, 0.409 mthm for grams
60** 0 1 90 365.25 730.5 1826.25 3652.5
/ 61** f1-20
/ 65$$ a4 1 2z 1 2z 1 5z 1 2z 1
/ a25 1 2z 1 2z 1 5z 1 2z 1
/ a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
/ 56$$ 0 -6 a10 1 e t
56$$ 0 10 a10 7 a14 5 a17 4 e 57** 10 e 5t
60** 15 20 30 50 100 150 200 250 300 400
/ 61** f1-20
/ 65$$ a4 1 2z 1 2z 1 5z 1 2z 1
/ a25 1 2z 1 2z 1 5z 1 2z 1
/ a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 400 e 5t
60** 500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.6+4
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 1.6+4 e 5t
60** 1.8+4 2.0+4 2.2+4 2.4+4 2.6+4 2.8+4 3+4 3.2+4 3.6+4 3.8+4
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 3.8+4 e 5t
60** 4+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 3 a10 10 a14 5 a17 4 e 57** 2.5+5 e 5t
60** 3+5 5+5 999999
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
/ 56$$ 0 -10 a10 1 e t
56$$ f0 t

```

0	module origins	is finished.	completion code	0. cpu time used	5.00 (seconds).			
1	oooooooooooo	rrrrrrrrrrrr	iiiiiiiiiiii	gggggggggggg	eeeeeeeeeeee	nn	nn	ssssssssss
	oooooooooooo	rrrrrrrrrrrr	iiiiiiiiiiii	gggggggggggg	eeeeeeeeeeee	nnn	nn	ssssssssssss
	oo	oo rr	rr ii	gg gg	ee	nnnn	nn	ss ss
	oo	oo rr	rr ii	gg	ee	nn nn	nn	ss
	oo	oo rr	rr ii	gg	ee	nn nn	nn	ss
	oo	oo rrrrrrrrrrr	ii	gg gggggggg	eeeeeeeeee	nn nn	nn	ssssssssssss
	oo	oo rrrrrrrrrrr	ii	gg gggggggg	eeeeeeeeee	nn nn	nn	ssssssssssss
	oo	oo rr	rr ii	gg gg	ee	nn	nn	ss
	oo	oo rr	rr ii	gg gg	ee	nn	nn	ss
	oo	oo rr	rr ii	gg gg	ee	nn	nnnn	ss ss
	oooooooooooo	rr	rr iiiiiiiiiii	gggggggggggg	eeeeeeeeeeee	nn	nnn	ssssssssssss
	oooooooooooo	rr	rr iiiiiiiiiii	gggggggggggg	eeeeeeeeeeee	nn	nn	ssssssssss

0

dddddddddddd	aaaaaaaaaa	v	v	iiiiiiiiiiii	ssssssssss
dddddddddddd	aaaaaaaaaa	v	v	iiiiiiiiiiii	ssssssssss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dd	aaaaaaaaaa	v	v	ii	ssssssssss
dd	aaaaaaaaaa	v	v	ii	ssssssssss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dd	aa	v	v	ii	ss
dddddddddddd	aa	v	v	iiiiiiiiiiii	ssssssssss
dddddddddddd	aa	v	v	iiiiiiiiiiii	ssssssssss

0

00000000	2222222222	///	11	6666666666	///	9999999999	6666666666
0000000000	222222222222	///	111	666666666666	///	999999999999	666666666666
00	22	///	1111	66	///	99	66
00	22	///	11	66	///	99	66
00	22	///	11	66	///	99	66
00	22	///	11	666666666666	///	999999999999	666666666666
00	22	///	11	666666666666	///	999999999999	666666666666
00	22	///	11	66	///	99	66
00	22	///	11	66	///	99	66
00	22	///	11	66	///	99	66
00	22	///	11	66	///	99	66
0000000000	222222222222	///	11111111	666666666666	///	999999999999	666666666666
00000000	222222222222	///	11111111	666666666666	///	999999999999	666666666666

0

11	00000000	00000000	777777777777	00000000	00000000
111	0000000000	0000000000	777777777777	0000000000	0000000000
1111	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11	00	00	77	00	00
11111111	00	00	77	00	00
11111111	0000000000	0000000000	77	0000000000	00000000
	00000000	00000000		00000000	00000000

1

0

ssssssssss	cccccccccc	aaaaaaaaaa	ll	eeeeeeeeeeee
ssssssssssss	cccccccccccc	aaaaaaaaaaaa	ll	eeeeeeeeeeee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ssssssssss	cc	aaaaaaa	ll	eeeeeeeee
ssssssssss	cc	aaaaaaaaaaa	ll	eeeeeeeee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ss	cc	aa	ll	ee
ssssssssss	cccccccccccc	aa	ll	eeeeeeeeeeee
ssssssssss	cccccccccccc	aa	ll	eeeeeeeeeeee


```

/ 65$$ a4 1 2z 1 2z 1 5z 1 2z 1
/ a25 1 2z 1 2z 1 5z 1 2z 1
/ a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 400 e 5t
60** 500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.6+4
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 1.6+4 e 5t
60** 1.8+4 2.0+4 2.2+4 2.4+4 2.6+4 2.8+4 3+4 3.2+4 3.6+4 3.8+4
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 3.8+4 e 5t
60** 4+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 3 a10 10 a14 5 a17 4 e 57** 2.5+5 e 5t
60** 3+5 5+5 999999
/ 61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
/ 56$$ 0 -10 a10 1 e t
56$$ f0 t
Owhen job "fails", make sure no fido input.....is out here!

```

```

0 0$ array 12 entries read
0 1$ array 1 entries read
0 1t
0 dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0 short-lived split test fraction, qxn = 9.1188E-04
0 half-norm of matrix used, axn = 7.0000E+00
0 4-place-accuracy-retention ratio, ratio4 = 6.4516E-13
0 3$$ 21 0 1 a33 -88
0 3$ array 33 entries read
0 2t
1library information...

```

cross-section data taken from position number 1 of library on unit 21.

```

pass 1
pass 0
*scale-system control module sas2 library*
used a time-dependent neutron spectrum, for each of the above passes
pass 0 applies start-up fuel densities
pass n applies mid time densities of nth library interval
first library updated was...
*****
*
*      prelim lwr origen-s binary working library--id = 1143      *
*      made from modified card-image origen-s libraries of scale 4.2 *
*      data from the light element, actinide, and fission product libraries *
*      decay data, including gamma and total energy, are from endf/b-vi *
*
*      neutron flux spectrum factors and cross sections were produced from *
*      the "presas2" case updating all nuclides on the scale "burnup" library *
*

```

```

*          fission product yields are from endf/b-v          *
*          *          *          *          *          *          *
*          photon libraries use an 18-energy-group structure  *
*          the photon data are from the master photon data base, *
*          produced to include bremsstrahlung from uo2 matrix  *
*          *          *          *          *          *          *
*          see information above this box (if present) for later updates *
*          *          *          *          *          *          *

```

```

*****
0          .other identification and sizes of library.
0          data set name: /neutronics/scale/datalib/origen/binrylib/pr
0          4/20/1995 date library was produced
0          1697 total number of nuclides in library
0          689 number of light-element nuclides
0          129 number of actinide nuclides
0          879 number of fission product nuclides
0          7935 number of nonzero off-diagonal matrix elements
0          *****

```

Obtaining data from position no. 1 on unit no. 71

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 1

	nuclide concentrations, grams									
	basis =per B&W assembly, 0.409 mthm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
he 4	6.76E-02	6.76E-02	6.76E-02	6.78E-02	8.33E-02	1.10E-01	1.26E-01	1.56E-01	2.09E-01	
tl206	5.52E-24	5.52E-24	5.52E-24	5.54E-24	6.41E-24	8.49E-24	1.24E-23	3.54E-23	1.29E-22	
tl207	2.68E-15	2.68E-15	2.68E-15	2.69E-15	3.19E-15	5.00E-15	7.05E-15	1.31E-14	2.29E-14	
tl208	1.05E-12	1.05E-12	1.05E-12	1.07E-12	1.32E-12	2.28E-12	3.72E-12	7.68E-12	1.13E-11	
tl209	2.14E-18	2.14E-18	2.14E-18	2.13E-18	4.40E-19	4.05E-19	4.50E-19	5.97E-19	8.79E-19	
pb206	1.77E-13	1.77E-13	1.77E-13	1.78E-13	2.43E-13	5.26E-13	1.08E-12	4.78E-12	2.81E-11	
pb207	1.97E-10	1.97E-10	1.97E-10	1.98E-10	2.53E-10	4.88E-10	9.40E-10	3.23E-09	1.01E-08	
pb208	2.83E-07	2.83E-07	2.83E-07	2.84E-07	3.79E-07	8.23E-07	1.81E-06	7.58E-06	2.38E-05	
pb209	9.02E-15	9.02E-15	9.02E-15	8.59E-15	1.86E-15	1.71E-15	1.90E-15	2.52E-15	3.71E-15	
pb210	1.21E-11	1.21E-11	1.21E-11	1.21E-11	1.38E-11	1.83E-11	2.68E-11	7.64E-11	2.79E-10	
pb211	2.08E-14	2.08E-14	2.08E-14	2.08E-14	2.47E-14	3.87E-14	5.46E-14	1.01E-13	1.77E-13	
pb212	6.21E-10	6.21E-10	6.21E-10	6.20E-10	7.81E-10	1.35E-09	2.20E-09	4.55E-09	6.68E-09	
pb214	3.64E-16	3.64E-16	3.64E-16	3.64E-16	4.08E-16	5.64E-16	8.25E-16	1.98E-15	5.12E-15	
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bi209	1.42E-11	1.42E-11	1.42E-11	1.43E-11	1.63E-11	1.86E-11	2.19E-11	3.42E-11	6.31E-11	
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bi210	7.33E-15	7.33E-15	7.33E-15	7.34E-15	8.50E-15	1.13E-14	1.65E-14	4.70E-14	1.72E-13	
bi211	1.23E-15	1.23E-15	1.23E-15	1.23E-15	1.46E-15	2.29E-15	3.23E-15	6.01E-15	1.05E-14	
bi212	5.89E-11	5.89E-11	5.89E-11	6.01E-11	7.41E-11	1.28E-10	2.09E-10	4.32E-10	6.34E-10	
bi213	2.15E-15	2.15E-15	2.15E-15	2.14E-15	4.43E-16	4.07E-16	4.52E-16	6.01E-16	8.84E-16	
bi214	2.70E-16	2.70E-16	2.70E-16	2.71E-16	3.03E-16	4.19E-16	6.13E-16	1.47E-15	3.81E-15	
po210	1.29E-13	1.29E-13	1.29E-13	1.30E-13	1.62E-13	2.47E-13	3.71E-13	1.10E-12	4.74E-12	
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
po211	1.36E-20	1.36E-20	1.36E-20	1.36E-20	1.61E-20	2.53E-20	3.57E-20	6.64E-20	1.16E-19	
po212	3.09E-21	3.09E-21	3.09E-21	3.16E-21	3.89E-21	6.74E-21	1.10E-20	2.27E-20	3.33E-20	
po213	3.23E-24	3.23E-24	3.23E-24	3.22E-24	6.66E-25	6.12E-25	6.80E-25	9.03E-25	1.33E-24	
po214	8.94E-23	8.94E-23	8.94E-23	8.77E-23	4.42E-23	5.76E-23	8.43E-23	2.02E-22	5.24E-22	
po215	1.74E-20	1.74E-20	1.74E-20	1.74E-20	2.06E-20	3.24E-20	4.57E-20	8.49E-20	1.48E-19	
po216	2.39E-15	2.39E-15	2.39E-15	2.39E-15	3.01E-15	5.22E-15	8.50E-15	1.76E-14	2.58E-14	
po218	4.29E-17	4.29E-17	4.29E-17	4.29E-17	4.80E-17	6.65E-17	9.73E-17	2.33E-16	6.04E-16	
at217	2.58E-20	2.58E-20	2.58E-20	2.58E-20	5.33E-21	4.90E-21	5.44E-21	7.23E-21	1.06E-20	
rn218	1.13E-20	1.13E-20	1.13E-20	1.10E-20	5.64E-22	5.86E-26	3.03E-31	.00E+00	.00E+00	
rn219	3.94E-17	3.94E-17	3.94E-17	3.95E-17	4.68E-17	7.34E-17	1.04E-16	1.92E-16	3.36E-16	
rn220	9.35E-13	9.35E-13	9.35E-13	9.35E-13	1.18E-12	2.04E-12	3.32E-12	6.86E-12	1.01E-11	

sr 90	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.62E+02	1.59E+02	1.55E+02	1.44E+02	1.27E+02
y 90	4.30E-02	4.30E-02	4.30E-02	4.28E-02	4.20E-02	4.12E-02	4.02E-02	3.74E-02	3.30E-02
y 90m	3.65E-08	3.65E-08	3.65E-08	1.98E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	7.74E+00	7.74E+00	7.74E+00	7.75E+00	8.72E+00	1.17E+01	1.56E+01	2.66E+01	4.32E+01
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	2.67E-10	2.67E-10	2.67E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	4.62E-08	4.62E-08	4.62E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	8.82E-06	8.82E-06	8.82E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.07E-04	1.07E-04	1.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	6.74E-02	6.74E-02	6.74E-02	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.01E+01	1.01E+01	1.01E+01	1.01E+01	3.51E+00	1.35E-01	1.78E-03	4.09E-09	1.64E-18
y 91m	3.40E-03	3.40E-03	3.40E-03	6.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.69E+02	1.69E+02	1.69E+02	1.69E+02	1.76E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.66E-10	2.65E-10	2.64E-10
se 92	1.39E-11	1.39E-11	1.39E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	4.84E-09	4.84E-09	4.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.03E-06	1.03E-06	1.03E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	7.36E-06	7.36E-06	7.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	2.06E-02	2.06E-02	2.06E-02	4.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	2.71E-02	2.71E-02	2.71E-02	8.55E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	6.10E-14	6.10E-14	6.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	6.53E-10	6.53E-10	6.53E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	2.47E-07	2.47E-07	2.47E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	7.80E-06	7.80E-06	7.80E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	1.07E-03	1.07E-03	1.07E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	5.92E-02	5.92E-02	5.92E-02	1.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
nb 93	8.41E-06	8.41E-06	8.41E-06	8.42E-06	9.65E-06	1.44E-05	2.27E-05	6.12E-05	1.65E-04
nb 93m	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.24E-04	1.67E-04	2.22E-04	3.72E-04	5.83E-04
br 94	2.17E-11	2.17E-11	2.17E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	1.87E-08	1.87E-08	1.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.93E-06	1.93E-06	1.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 8

	nuclide concentrations, grams									
	basis =per B&W assembly, 0.409 mthm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
sr 94	1.81E-04	1.81E-04	1.81E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	2.93E-03	2.93E-03	2.93E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04
nb 94m	3.29E-10	3.29E-10	3.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	2.38E-13	2.38E-13	2.38E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	6.61E-09	6.61E-09	6.61E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	1.34E-07	1.34E-07	1.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	5.48E-05	5.48E-05	5.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	1.72E-03	1.72E-03	1.72E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	1.55E+01	1.55E+01	1.55E+01	1.54E+01	5.87E+00	2.98E-01	5.71E-03	4.02E-08	1.04E-16	
nb 95	8.53E+00	8.53E+00	8.53E+00	8.53E+00	5.35E+00	3.51E-01	7.08E-03	4.84E-08	1.25E-16	
nb 95m	1.01E-02	1.01E-02	1.01E-02	1.00E-02	3.89E-03	1.98E-04	3.79E-06	2.66E-11	6.88E-20	
mo 95	2.00E+02	2.00E+02	2.00E+02	2.00E+02	2.13E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	
br 96	4.47E-14	4.47E-14	4.47E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 96	4.35E-10	4.35E-10	4.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 96	1.75E-08	1.75E-08	1.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 96	1.71E-06	1.71E-06	1.71E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 96	1.57E-05	1.57E-05	1.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	
nb 96	2.59E-04	2.59E-04	2.59E-04	1.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	2.17E-10	2.17E-10	2.17E-10	1.30E-13	1.30E-13	1.29E-13	1.29E-13	1.27E-13	1.23E-13	
ag108m	4.21E-05	4.21E-05	4.21E-05	4.21E-05	4.21E-05	4.19E-05	4.17E-05	4.10E-05	3.99E-05	
cd108	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.35E-05	4.36E-05	
zr109	6.67E-17	6.67E-17	6.67E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb109	4.24E-12	4.24E-12	4.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo109	7.22E-09	7.22E-09	7.22E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc109	1.41E-07	1.41E-07	1.41E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru109	1.63E-05	1.63E-05	1.63E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh109	4.36E-05	4.36E-05	4.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh109m	1.36E-05	1.36E-05	1.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd109	2.97E-02	2.97E-02	2.97E-02	8.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd109m	7.34E-07	7.34E-07	7.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag109	2.18E+01	2.18E+01	2.18E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	
ag109m	2.39E-05	2.39E-05	2.39E-05	7.10E-06	2.85E-14	1.88E-14	1.09E-14	2.11E-15	1.37E-16	
cd109	3.29E-08	3.29E-08	3.29E-08	3.28E-08	2.87E-08	1.90E-08	1.10E-08	2.13E-09	1.38E-10	
nb110	7.02E-14	7.02E-14	7.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo110	1.49E-09	1.49E-09	1.49E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc110	1.28E-08	1.28E-08	1.28E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru110	2.20E-06	2.20E-06	2.20E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh110	8.06E-08	8.06E-08	8.06E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh110m	4.90E-06	4.90E-06	4.90E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	
ag110	4.66E-06	4.66E-06	4.66E-06	1.60E-09	1.25E-09	5.84E-10	2.12E-10	1.01E-11	6.37E-14	
ag110m	1.04E-01	1.04E-01	1.04E-01	1.03E-01	8.08E-02	3.77E-02	1.37E-02	6.53E-04	4.11E-06	

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 11

	nuclide concentrations, grams									
	basis =per B&W assembly, 0.409 mthm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
cd110	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.68E+00	5.72E+00	5.75E+00	5.76E+00	5.76E+00	
nb111	6.56E-16	6.56E-16	6.56E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo111	2.22E-11	2.22E-11	2.22E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc111	5.89E-09	5.89E-09	5.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru111	7.75E-08	7.75E-08	7.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh111	1.06E-06	1.06E-06	1.06E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd111	1.45E-04	1.45E-04	1.45E-04	2.51E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd111m	9.29E-05	9.29E-05	9.29E-05	4.51E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag111	6.65E-02	6.65E-02	6.65E-02	6.08E-02	1.54E-05	1.16E-16	2.03E-31	.00E+00	.00E+00	
ag111m	6.70E-06	6.70E-06	6.70E-06	1.44E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cd111	4.98E+00	4.98E+00	4.98E+00	4.98E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	
cd111m	2.40E-07	2.40E-07	2.40E-07	2.89E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb112	1.14E-17	1.14E-17	1.14E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo112	6.07E-12	6.07E-12	6.07E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc112	2.10E-10	2.10E-10	2.10E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru112	5.80E-08	5.80E-08	5.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh112	5.87E-08	5.87E-08	5.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd112	3.68E-03	3.68E-03	3.68E-03	1.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag112	5.50E-04	5.50E-04	5.50E-04	2.92E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cd112	2.63E+00	2.63E+00	2.63E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	
mo113	2.68E-14	2.68E-14	2.68E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc113	7.30E-11	7.30E-11	7.30E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru113	1.53E-08	1.53E-08	1.53E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh113	1.70E-08	1.70E-08	1.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd113	2.63E-06	2.63E-06	2.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag113	5.31E-04	5.31E-04	5.31E-04	2.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag113m	3.79E-07	3.79E-07	3.79E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cd113	4.52E-02	4.52E-02	4.52E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	
cd113m	2.80E-02	2.80E-02	2.80E-02	2.81E-02	2.77E-02	2.67E-02	2.54E-02	2.19E-02	1.72E-02	
in113	1.97E-03	1.97E-03	1.97E-03	1.98E-03	2.31E-03	3.32E-03	4.60E-03	8.08E-03	1.29E-02	

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	1.31E-03	1.31E-03	1.31E-03	3.43E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	8.33E-06	8.33E-06	8.33E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	2.73E-11	2.73E-11	2.73E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	6.83E-09	6.83E-09	6.83E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	2.52E-05	2.52E-05	2.52E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	2.46E-03	2.46E-03	2.46E-03	3.54E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	2.88E-03	2.88E-03	2.88E-03	8.74E-05	3.22E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	4.85E-02	4.85E-02	4.85E-02	2.80E-02	1.03E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	1.57E+00	1.57E+00	1.57E+00	1.46E+00	6.97E-04	3.45E-14	7.30E-28	.00E+00	.00E+00	.00E+00
xe131	1.36E+02	1.36E+02	1.36E+02	1.36E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	2.55E-02	2.55E-02	2.55E-02	2.55E-02	4.00E-04	4.60E-11	2.64E-20	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 15

	nuclide concentrations, grams									
	basis =per B&W assembly, 0.409 mthm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
cd132	4.27E-12	4.27E-12	4.27E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	1.27E-09	1.27E-09	1.27E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	2.11E-05	2.11E-05	2.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	2.70E-04	2.70E-04	2.70E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	1.74E-04	1.74E-04	1.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	9.25E-01	9.25E-01	9.25E-01	7.48E-01	4.48E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	2.75E-02	2.75E-02	2.75E-02	2.25E-02	1.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	4.00E-05	4.00E-05	4.00E-05	3.59E-05	2.63E-09	4.29E-22	4.59E-39	.00E+00	.00E+00	.00E+00
ba132	4.82E-05	4.82E-05	4.82E-05	4.83E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	2.45E-11	2.45E-11	2.45E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	2.08E-07	2.08E-07	2.08E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	2.24E-04	2.24E-04	2.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	1.93E-03	1.93E-03	1.93E-03	5.39E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	7.03E-03	7.03E-03	7.03E-03	1.06E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	3.55E-01	3.55E-01	3.55E-01	1.64E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	3.25E-06	3.25E-06	3.25E-06	2.93E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	2.09E+00	2.09E+00	2.09E+00	2.02E+00	1.76E-05	2.76E-21	2.98E-42	.00E+00	.00E+00	.00E+00
xe133m	2.82E-02	2.82E-02	2.82E-02	2.54E-02	1.94E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.38E+02	3.38E+02	3.38E+02	3.39E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	2.52E-08	2.52E-08	2.52E-08	2.52E-08	2.48E-08	2.36E-08	2.21E-08	1.81E-08	1.30E-08	1.30E-08
in134	2.98E-12	2.98E-12	2.98E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	2.57E-08	2.57E-08	2.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	2.33E-07	2.33E-07	2.33E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.08E-06	2.08E-06	2.08E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	1.06E-02	1.06E-02	1.06E-02	4.51E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	1.67E-02	1.67E-02	1.67E-02	3.90E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	1.02E-04	1.02E-04	1.02E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	2.79E-08	2.79E-08	2.79E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	2.08E+01	2.08E+01	2.08E+01	2.08E+01	1.92E+01	1.49E+01	1.06E+01	3.88E+00	7.23E-01	7.23E-01
cs134m	6.61E-04	6.61E-04	6.61E-04	2.18E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	8.91E+00	8.91E+00	8.91E+00	8.93E+00	1.06E+01	1.49E+01	1.91E+01	2.59E+01	2.90E+01	2.90E+01
sn135	8.95E-10	8.95E-10	8.95E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	2.17E-07	2.17E-07	2.17E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	4.34E-05	4.34E-05	4.34E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	1.08E-01	1.08E-01	1.08E-01	8.60E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	7.66E-02	7.66E-02	7.66E-02	4.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	9.14E-04	9.14E-04	9.14E-04	5.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
cs135m	1.03E-04	1.03E-04	1.03E-04	6.85E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	3.81E-02	3.81E-02	3.81E-02	3.82E-02	3.82E-02	3.82E-02	3.83E-02	3.84E-02	3.87E-02	3.87E-02

1 pm154m 4.02E-06 4.02E-06 4.02E-06 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
 0 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay nuclide concentrations, grams fission products page 19

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
	basis =per B&W assembly, 0.409 mthm for grams								
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.16E+00	6.73E+00	6.21E+00	4.88E+00	3.26E+00
gd154	6.33E-01	6.33E-01	6.33E-01	6.35E-01	7.77E-01	1.20E+00	1.72E+00	3.06E+00	4.67E+00
la155	2.88E-16	2.88E-16	2.88E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	1.71E-11	1.71E-11	1.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	1.98E-09	1.98E-09	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	5.96E-07	5.96E-07	5.96E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.63E-06	3.63E-06	3.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	1.23E-04	1.23E-04	1.23E-04	4.63E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	3.12E+00	3.12E+00	3.12E+00	3.12E+00	3.01E+00	2.69E+00	2.32E+00	1.49E+00	7.10E-01
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	5.34E-02	5.34E-02	5.34E-02	5.46E-02	1.65E-01	4.83E-01	8.54E-01	1.69E+00	2.47E+00
ce156	1.51E-12	1.51E-12	1.51E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	9.59E-11	9.59E-11	9.59E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	2.27E-07	2.27E-07	2.27E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	4.95E-07	4.95E-07	4.95E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	1.97E-03	1.97E-03	1.97E-03	3.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	3.13E-01	3.13E-01	3.13E-01	3.01E-01	5.19E-03	1.81E-08	1.04E-15	.00E+00	.00E+00
gd156	9.00E+00	9.00E+00	9.00E+00	9.01E+00	9.31E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	2.60E-14	2.60E-14	2.60E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.46E-11	1.46E-11	1.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	7.14E-09	7.14E-09	7.14E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	1.02E-06	1.02E-06	1.02E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.74E-05	1.74E-05	1.74E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	2.31E-03	2.31E-03	2.31E-03	7.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	2.88E-02	2.88E-02	2.88E-02	3.03E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	3.40E-13	3.40E-13	3.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	1.29E-09	1.29E-09	1.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	1.68E-08	1.68E-08	1.68E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	6.11E-06	6.11E-06	6.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	5.75E-05	5.75E-05	5.75E-05	2.32E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	1.49E-14	1.49E-14	1.49E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.75E-11	2.75E-11	2.75E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	2.99E-09	2.99E-09	2.99E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	1.21E-06	1.21E-06	1.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	1.14E-05	1.14E-05	1.14E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	8.20E-04	8.20E-04	8.20E-04	3.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.02E-01	5.02E-01	5.02E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	1.99E-12	1.99E-12	1.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	8.10E-11	8.10E-11	8.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.60E-07	1.60E-07	1.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	1.87E-07	1.87E-07	1.87E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	8.91E-03	8.91E-03	8.91E-03	8.83E-03	3.76E-03	2.69E-04	8.10E-06	2.22E-10	5.53E-18
dy160	3.04E-02	3.04E-02	3.04E-02	3.05E-02	3.55E-02	3.90E-02	3.93E-02	3.93E-02	3.93E-02
nd161	3.04E-14	3.04E-14	3.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	9.99E-12	9.99E-12	9.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.24E-09	2.24E-09	2.24E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	6.86E-08	6.86E-08	6.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	5.03E-07	5.03E-07	5.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.44E-03	1.44E-03	1.44E-03	1.30E-03	1.71E-07	1.68E-19	1.96E-35	.00E+00	.00E+00

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 20

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	nuclide concentrations, grams									
	basis =per B&W assembly, 0.409 mthm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
dy161	8.12E-02	8.12E-02	8.12E-02	8.13E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	2.17E-13	2.17E-13	2.17E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.58E-10	3.58E-10	3.58E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	6.73E-08	6.73E-08	6.73E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.94E-07	4.94E-07	4.94E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.65E-07	4.65E-07	4.65E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.49E-07	1.49E-07	1.49E-07	8.55E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	6.78E-12	6.78E-12	6.78E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	6.20E-10	6.20E-10	6.20E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	3.23E-08	3.23E-08	3.23E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	4.70E-07	4.70E-07	4.70E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	4.86E-13	4.86E-13	4.86E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	1.47E-11	1.47E-11	1.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	1.35E-07	1.35E-07	1.35E-07	1.38E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	2.63E-08	2.63E-08	2.63E-08	2.21E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	7.20E-15	7.20E-15	7.20E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	1.41E-12	1.41E-12	1.41E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	9.57E-10	9.57E-10	9.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	6.35E-09	6.35E-09	6.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	3.09E-06	3.09E-06	3.09E-06	2.50E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	2.11E-08	2.11E-08	2.11E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.49E-03	9.49E-03	9.49E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	2.61E-06	2.61E-06	2.61E-06	2.13E-06	2.82E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	6.02E-06	6.02E-06	6.02E-06	3.59E-06	1.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.37E-05	2.37E-05	2.37E-05
er166	1.54E-03	1.54E-03	1.54E-03	1.54E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	6.33E-16	6.33E-16	6.33E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.23E-08	1.23E-08	1.23E-08	1.14E-08	1.61E-11	2.47E-20	4.97E-32	.00E+00	.00E+00	.00E+00
tm169	7.29E-07	7.29E-07	7.29E-07	7.30E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	9.71E-10	9.71E-10	9.71E-10	9.66E-10	5.98E-10	1.36E-10	1.89E-11	5.15E-14	2.73E-18	
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	3.65E-09	3.65E-09	3.65E-09	3.66E-09	4.02E-09	4.49E-09	4.60E-09	4.62E-09	4.62E-09	4.62E-09
er171	5.73E-10	5.73E-10	5.73E-10	6.27E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	6.82E-07	6.82E-07	6.82E-07	6.82E-07	6.24E-07	4.76E-07	3.31E-07	1.12E-07	1.85E-08	
yb171	3.69E-07	3.69E-07	3.69E-07	3.70E-07	4.27E-07	5.76E-07	7.20E-07	9.39E-07	1.03E-06	
er172	2.37E-09	2.37E-09	2.37E-09	1.69E-09	1.54E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	3.20E-09	3.20E-09	3.20E-09	3.06E-09	8.23E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.67E-07	6.67E-07	6.67E-07	6.68E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 21

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	nuclide concentrations, grams										
	basis =per B&W assembly, 0.409 mthm for grams										
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
he 4	2.09E-01	2.70E-01	3.35E-01	4.74E-01	7.72E-01	1.51E+00	2.18E+00	2.79E+00	3.36E+00	3.87E+00	4.81E+00
tl206	1.29E-22	3.23E-22	6.46E-22	1.79E-21	6.59E-21	3.78E-20	1.01E-19	2.00E-19	3.34E-19	5.04E-19	9.52E-19
tl207	2.29E-14	3.24E-14	4.16E-14	5.93E-14	9.27E-14	1.71E-13	2.47E-13	3.22E-13	3.98E-13	4.73E-13	6.23E-13
tl208	1.13E-11	1.22E-11	1.22E-11	1.12E-11	9.22E-12	5.61E-12	3.41E-12	2.08E-12	1.26E-12	7.70E-13	2.85E-13

kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 27

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr	
nuclide concentrations, grams basis = per B&W assembly, 0.409 mthm for grams												
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 89	1.18E-21	1.57E-32	2.49E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	
y 89m	4.04E-31	5.74E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 90	1.27E+02	1.12E+02	9.93E+01	7.77E+01	4.75E+01	1.39E+01	4.04E+00	1.18E+00	3.45E-01	1.01E-01	8.57E-03	
y 90	3.30E-02	2.92E-02	2.58E-02	2.02E-02	1.23E-02	3.60E-03	1.05E-03	3.07E-04	8.95E-05	2.61E-05	2.23E-06	
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr 90	4.32E+01	5.80E+01	7.10E+01	9.27E+01	1.23E+02	1.56E+02	1.66E+02	1.69E+02	1.70E+02	1.70E+02	1.70E+02	
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 91	1.64E-18	6.59E-28	2.64E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	
nb 91	2.64E-10	2.63E-10	2.61E-10	2.59E-10	2.54E-10	2.41E-10	2.29E-10	2.18E-10	2.07E-10	1.97E-10	1.77E-10	
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	
nb 93	1.65E-04	3.09E-04	4.86E-04	9.15E-04	1.96E-03	4.96E-03	8.09E-03	1.12E-02	1.44E-02	1.75E-02	2.38E-02	

1 y100 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
 0 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 29

	nuclide concentrations, grams										
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	1.99E-05	6.02E-06	1.82E-06	1.67E-07	1.40E-09	9.04E-15	5.83E-20	3.76E-25	2.43E-30	1.56E-35	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	9.22E-28	9.09E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	9.13E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 30

0

	nuclide concentrations, grams										
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	3.71E-02	1.23E-03	4.08E-05	4.48E-08	5.42E-14	8.72E-29	1.49E-43	.00E+00	.00E+00	.00E+00	.00E+00
rh106	3.44E-08	1.14E-09	3.78E-11	4.16E-14	5.03E-20	8.09E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	6.19E-05	8.92E-05	1.16E-04	1.71E-04	2.80E-04	5.53E-04	8.26E-04	1.10E-03	1.37E-03	1.65E-03	2.19E-03
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	1.23E-13	1.20E-13	1.17E-13	1.10E-13	9.90E-14	7.53E-14	5.73E-14	4.36E-14	3.32E-14	2.53E-14	1.47E-14
ag108m	3.99E-05	3.88E-05	3.78E-05	3.58E-05	3.21E-05	2.44E-05	1.86E-05	1.41E-05	1.08E-05	8.19E-06	4.75E-06
cd108	4.36E-05	4.37E-05	4.38E-05	4.39E-05	4.43E-05	4.49E-05	4.54E-05	4.58E-05	4.61E-05	4.63E-05	4.66E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	1.37E-16	8.87E-18	5.74E-19	2.41E-21	4.25E-26	5.54E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	1.38E-10	8.95E-12	5.80E-13	2.43E-15	4.29E-20	5.60E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	6.37E-14	4.01E-16	2.52E-18	9.99E-23	1.56E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	4.11E-06	2.59E-08	1.63E-10	6.44E-15	1.01E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 31

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	nuclide concentrations, grams										
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr

rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	4.06E-07	5.40E-09	7.18E-11	1.27E-14	3.98E-22	6.89E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay							fission products			page 33		
nuclide concentrations, grams												
basis =per B&W assembly, 0.409 mthm for grams												
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr	
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn121	4.13E-07	3.88E-07	3.64E-07	3.21E-07	2.50E-07	1.33E-07	7.08E-08	3.77E-08	2.01E-08	1.07E-08	3.03E-09	

sn121m	9.49E-03	8.91E-03	8.37E-03	7.38E-03	5.73E-03	3.05E-03	1.63E-03	8.66E-04	4.61E-04	2.46E-04	6.96E-05
sb121	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	4.84E-11	2.68E-15	1.48E-19	4.55E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	4.49E-14	1.14E-18	2.91E-23	1.89E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	2.97E-21	2.19E-30	1.61E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	1.47E-01	4.12E-02	1.16E-02	9.13E-04	5.69E-06	1.74E-11	5.33E-17	1.63E-22	5.00E-28	1.53E-33	.00E+00
te125	2.53E+00	2.64E+00	2.67E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	2.08E-03	5.85E-04	1.64E-04	1.30E-05	8.08E-08	2.47E-13	7.57E-19	2.32E-24	7.10E-30	2.15E-35	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.87E+00

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	Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay											fission products			page 34
	nuclide concentrations, grams														
	basis =per B&W assembly, 0.409 mthm for grams														
	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr				
sb126	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07				
sb126m	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09				
te126	7.87E-02	7.89E-02	7.91E-02	7.94E-02	8.01E-02	8.18E-02	8.35E-02	8.51E-02	8.68E-02	8.85E-02	9.19E-02				
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09				
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00				
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00				
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00				
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00				
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00				

ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.37E-05	2.36E-05	2.35E-05	2.34E-05	2.31E-05	2.25E-05	2.18E-05	2.12E-05	2.06E-05	2.00E-05	1.89E-05	
er166	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	
tm170	2.73E-18	1.45E-22	7.68E-27	2.16E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tm171	1.85E-08	3.04E-09	5.00E-10	1.35E-11	9.89E-15	1.43E-22	2.08E-30	3.01E-38	.00E+00	.00E+00	.00E+00	
yb171	1.03E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 41

		nuclide concentrations, grams											
		basis =per B&W assembly, 0.409 mthm for grams											
	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr		
he 4	4.81E+00	5.62E+00	8.60E+00	1.20E+01	1.64E+01	2.01E+01	2.33E+01	2.62E+01	2.89E+01	3.13E+01	3.35E+01		
tl206	9.52E-19	1.54E-18	6.83E-18	2.46E-17	7.84E-17	1.44E-16	2.13E-16	2.82E-16	3.51E-16	4.19E-16	4.85E-16		
tl207	6.23E-13	7.73E-13	1.57E-12	3.06E-12	5.99E-12	8.86E-12	1.17E-11	1.44E-11	1.71E-11	1.97E-11	2.23E-11		
tl208	2.85E-13	1.06E-13	1.26E-15	5.33E-16	5.39E-16	5.46E-16	5.53E-16	5.61E-16	5.70E-16	5.79E-16	5.88E-16		
tl209	2.31E-16	3.81E-16	1.90E-15	9.43E-15	4.29E-14	9.80E-14	1.71E-13	2.59E-13	3.59E-13	4.70E-13	5.88E-13		
pb206	7.74E-06	1.59E-05	1.44E-04	1.12E-03	7.68E-03	2.22E-02	4.57E-02	7.83E-02	1.20E-01	1.71E-01	2.31E-01		
pb207	9.84E-06	1.52E-05	6.00E-05	2.36E-04	9.26E-04	2.06E-03	3.63E-03	5.63E-03	8.04E-03	1.09E-02	1.41E-02		
pb208	4.69E-04	4.75E-04	4.79E-04	4.79E-04	4.79E-04	4.80E-04	4.80E-04	4.81E-04	4.81E-04	4.81E-04	4.82E-04		
pb209	9.74E-13	1.61E-12	8.02E-12	3.98E-11	1.81E-10	4.14E-10	7.23E-10	1.09E-09	1.52E-09	1.98E-09	2.48E-09		
pb210	2.05E-06	3.32E-06	1.47E-05	5.30E-05	1.69E-04	3.10E-04	4.58E-04	6.08E-04	7.57E-04	9.03E-04	1.05E-03		
pb211	4.82E-12	5.98E-12	1.21E-11	2.36E-11	4.63E-11	6.85E-11	9.03E-11	1.12E-10	1.32E-10	1.53E-10	1.72E-10		
pb212	1.69E-10	6.29E-11	7.49E-13	3.16E-13	3.19E-13	3.24E-13	3.28E-13	3.33E-13	3.38E-13	3.43E-13	3.49E-13		
pb214	5.62E-12	8.80E-12	3.43E-11	1.23E-10	3.94E-10	7.21E-10	1.07E-09	1.42E-09	1.76E-09	2.10E-09	2.44E-09		
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00		
bi209	2.33E-07	4.71E-07	4.52E-06	4.51E-05	4.27E-04	1.51E-03	3.61E-03	6.99E-03	1.19E-02	1.84E-02	2.67E-02		
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00		
bi210	1.26E-09	2.04E-09	9.06E-09	3.26E-08	1.04E-07	1.91E-07	2.82E-07	3.74E-07	4.66E-07	5.56E-07	6.44E-07		
bi211	2.86E-13	3.55E-13	7.20E-13	1.40E-12	2.74E-12	4.06E-12	5.35E-12	6.61E-12	7.84E-12	9.05E-12	1.02E-11		
bi212	1.61E-11	5.97E-12	7.10E-14	3.00E-14	3.03E-14	3.07E-14	3.11E-14	3.16E-14	3.20E-14	3.25E-14	3.31E-14		
bi213	2.32E-13	3.83E-13	1.91E-12	9.48E-12	4.31E-11	9.85E-11	1.72E-10	2.61E-10	3.61E-10	4.72E-10	5.91E-10		
bi214	4.17E-12	6.53E-12	2.55E-11	9.16E-11	2.92E-10	5.35E-10	7.93E-10	1.05E-09	1.31E-09	1.56E-09	1.81E-09		
po210	3.49E-08	5.65E-08	2.50E-07	9.01E-07	2.87E-06	5.26E-06	7.79E-06	1.03E-05	1.29E-05	1.54E-05	1.78E-05		
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00		
po211	3.16E-18	3.92E-18	7.95E-18	1.55E-17	3.03E-17	4.49E-17	5.91E-17	7.31E-17	8.67E-17	1.00E-16	1.13E-16		
po212	8.44E-22	3.14E-22	3.73E-24	1.57E-24	1.59E-24	1.61E-24	1.63E-24	1.66E-24	1.68E-24	1.71E-24	1.74E-24		
po213	3.49E-22	5.76E-22	2.87E-21	1.43E-20	6.48E-20	1.48E-19	2.59E-19	3.92E-19	5.43E-19	7.10E-19	8.89E-19		
po214	5.74E-19	8.99E-19	3.50E-18	1.26E-17	4.02E-17	7.37E-17	1.09E-16	1.45E-16	1.80E-16	2.15E-16	2.49E-16		
po215	4.04E-18	5.01E-18	1.02E-17	1.98E-17	3.88E-17	5.74E-17	7.56E-17	9.34E-17	1.11E-16	1.28E-16	1.44E-16		
po216	6.53E-16	2.43E-16	2.89E-18	1.22E-18	1.23E-18	1.25E-18	1.27E-18	1.28E-18	1.30E-18	1.32E-18	1.34E-18		
po218	6.62E-13	1.04E-12	4.04E-12	1.45E-11	4.64E-11	8.50E-11	1.26E-10	1.67E-10	2.08E-10	2.48E-10	2.87E-10		
at217	2.79E-18	4.61E-18	2.30E-17	1.14E-16	5.19E-16	1.19E-15	2.07E-15	3.14E-15	4.35E-15	5.68E-15	7.11E-15		
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00		
rn219	9.14E-15	1.13E-14	2.30E-14	4.49E-14	8.79E-14	1.30E-13	1.71E-13	2.12E-13	2.51E-13	2.90E-13	3.27E-13		
rn220	2.55E-13	9.48E-14	1.13E-15	4.76E-16	4.81E-16	4.87E-16	4.94E-16	5.01E-16	5.09E-16	5.17E-16	5.25E-16		

rn222	1.20E-09	1.88E-09	7.31E-09	2.63E-08	8.39E-08	1.54E-07	2.28E-07	3.02E-07	3.76E-07	4.49E-07	5.20E-07
fr221	2.59E-14	4.27E-14	2.13E-13	1.06E-12	4.81E-12	1.10E-11	1.92E-11	2.91E-11	4.03E-11	5.27E-11	6.59E-11
fr223	4.24E-14	5.27E-14	1.07E-13	2.08E-13	4.08E-13	6.03E-13	7.95E-13	9.82E-13	1.17E-12	1.34E-12	1.52E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	2.32E-09	2.88E-09	5.85E-09	1.14E-08	2.23E-08	3.30E-08	4.35E-08	5.38E-08	6.38E-08	7.36E-08	8.31E-08
ra224	1.48E-09	5.49E-10	6.53E-10	2.76E-12	2.79E-12	2.82E-12	2.86E-12	2.90E-12	2.95E-12	2.99E-12	3.04E-12
ra225	1.15E-10	1.89E-10	9.43E-10	4.68E-09	2.13E-08	4.87E-08	8.50E-08	1.29E-07	1.79E-07	2.33E-07	2.92E-07
ra226	1.86E-04	2.92E-04	1.14E-03	4.09E-03	1.31E-02	2.39E-02	3.54E-02	4.70E-02	5.85E-02	6.98E-02	8.08E-02
ra228	6.71E-12	8.40E-12	1.70E-11	3.46E-11	7.19E-11	1.11E-10	1.52E-10	1.95E-10	2.39E-10	2.83E-10	3.29E-10
ac225	7.74E-11	1.28E-10	6.37E-10	3.16E-09	1.44E-08	3.29E-08	5.74E-08	8.70E-08	1.21E-07	1.58E-07	1.97E-07
ac227	1.64E-06	2.04E-06	4.14E-06	8.07E-06	1.58E-05	2.34E-05	3.08E-05	3.81E-05	4.52E-05	5.21E-05	5.89E-05
ac228	8.19E-16	1.03E-15	2.07E-15	4.23E-15	8.77E-15	1.36E-14	1.86E-14	2.38E-14	2.91E-14	3.46E-14	4.01E-14
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	3.82E-09	4.74E-09	9.61E-09	1.87E-08	3.67E-08	5.43E-08	7.15E-08	8.83E-08	1.05E-07	1.21E-07	1.37E-07
th228	2.87E-07	1.07E-07	1.27E-09	5.35E-10	5.41E-10	5.48E-10	5.56E-10	5.64E-10	5.73E-10	5.82E-10	5.91E-10
th229	2.27E-05	3.75E-05	1.87E-04	9.27E-04	4.21E-03	9.63E-03	1.68E-02	2.55E-02	3.53E-02	4.62E-02	5.78E-02
th230	1.13E-01	1.43E-01	2.95E-01	5.98E-01	1.19E+00	1.77E+00	2.34E+00	2.89E+00	3.44E+00	3.96E+00	4.48E+00
th231	2.57E-08	2.58E-08	2.59E-08	2.62E-08	2.68E-08	2.73E-08	2.78E-08	2.82E-08	2.87E-08	2.91E-08	2.95E-08

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 42

	nuclide concentrations, grams											
	basis =per B&W assembly, 0.409 mthm for grams											
	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr	
th232	1.67E-02	2.09E-02	4.22E-02	8.61E-02	1.79E-01	2.77E-01	3.79E-01	4.85E-01	5.94E-01	7.04E-01	8.17E-01	
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	
pa231	2.71E-03	3.32E-03	6.34E-03	1.23E-02	2.42E-02	3.58E-02	4.71E-02	5.83E-02	6.91E-02	7.97E-02	9.01E-02	
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pa233	1.08E-05	1.19E-05	1.55E-05	1.78E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u232	1.04E-05	3.85E-06	4.62E-08	1.95E-08	1.92E-08	1.90E-08	1.88E-08	1.85E-08	1.83E-08	1.81E-08	1.79E-08	
u233	2.99E-02	4.06E-02	1.06E-01	2.64E-01	6.03E-01	9.41E-01	1.28E+00	1.61E+00	1.94E+00	2.26E+00	2.59E+00	
u234	1.09E+02	1.10E+02	1.11E+02	1.10E+02	1.10E+02	1.09E+02	1.09E+02	1.08E+02	1.08E+02	1.07E+02	1.07E+02	
u235	6.33E+03	6.34E+03	6.37E+03	6.44E+03	6.58E+03	6.71E+03	6.83E+03	6.95E+03	7.06E+03	7.16E+03	7.26E+03	
u236	1.44E+03	1.45E+03	1.48E+03	1.54E+03	1.64E+03	1.72E+03	1.79E+03	1.84E+03	1.89E+03	1.92E+03	1.95E+03	
u237	2.28E-12	2.22E-12	2.13E-12	1.96E-12	1.67E-12	1.41E-12	1.20E-12	1.02E-12	8.67E-13	7.37E-13	6.26E-13	
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u240	2.39E-20	2.98E-20	5.96E-20	1.19E-19	2.38E-19	3.56E-19	4.73E-19	5.91E-19	7.07E-19	8.24E-19	9.39E-19	
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
np236	3.70E-04	3.70E-04	3.68E-04	3.66E-04	3.62E-04	3.58E-04	3.53E-04	3.49E-04	3.45E-04	3.41E-04	3.37E-04	
np237	3.17E+02	3.51E+02	4.57E+02	5.25E+02	5.42E+02	5.42E+02	5.42E+02	5.41E+02	5.41E+02	5.41E+02	5.40E+02	
np238	1.10E-08	6.73E-09	5.76E-10	4.22E-12	2.27E-16	1.22E-20	6.54E-25	3.51E-29	1.89E-33	8.80E-38	.00E+00	
np239	8.36E-06	8.28E-06	7.90E-06	7.19E-06	5.96E-06	4.94E-06	4.09E-06	3.39E-06	2.81E-06	2.33E-06	1.93E-06	
np240m	2.04E-22	2.55E-22	5.09E-22	1.02E-21	2.03E-21	3.04E-21	4.04E-21	5.04E-21	6.04E-21	7.03E-21	8.02E-21	
np240	2.10E-24	2.62E-24	5.24E-24	1.05E-23	2.09E-23	3.12E-23	4.16E-23	5.19E-23	6.21E-23	7.23E-23	8.25E-23	
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pu236	8.30E-10	8.29E-10	8.27E-10	8.22E-10	8.12E-10	8.02E-10	7.93E-10	7.83E-10	7.74E-10	7.65E-10	7.55E-10	
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pu238	1.35E+00	6.24E-01	1.53E-02	1.74E-05	1.67E-09	9.00E-14	4.83E-18	2.60E-22	1.39E-26	7.49E-31	4.02E-35	
pu239	2.60E+03	2.59E+03	2.56E+03	2.49E+03	2.35E+03	2.22E+03	2.10E+03	1.98E+03	1.87E+03	1.77E+03	1.67E+03	
pu240	6.46E+02	6.39E+02	6.06E+02	5.45E+02	4.41E+02	3.57E+02	2.89E+02	2.34E+02	1.90E+02	1.53E+02	1.24E+02	
pu241	7.54E-05	7.32E-05	7.03E-05	6.48E-05	5.50E-05	4.67E-05	3.97E-05	3.37E-05	2.86E-05	2.43E-05	2.07E-05	
pu242	7.08E+01	7.08E+01	7.07E+01	7.06E+01	7.03E+01	7.01E+01	6.98E+01	6.96E+01	6.93E+01	6.91E+01	6.88E+01	

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 55

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr	
nuclide concentrations, grams basis =per B&W assembly, 0.409 mthm for grams												
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	
ba133	9.02E-20	1.24E-22	6.10E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba135	5.95E-02	6.49E-02	9.16E-02	1.45E-01	2.52E-01	3.58E-01	4.65E-01	5.71E-01	6.78E-01	7.84E-01	8.91E-01	

1 pm154m .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
 0 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay nuclide concentrations, grams fission products page 59
 basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.01E-14	2.19E-17	6.59E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	5.83E-26	2.15E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 60

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		nuclide concentrations, grams									
		basis =per B&W assembly, 0.409 mthm for grams									
	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	1.89E-05	1.78E-05	1.34E-05	7.49E-06	2.36E-06	7.43E-07	2.34E-07	7.38E-08	2.32E-08	7.32E-09	2.30E-09
er166	1.55E-03	1.56E-03	1.56E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

actinides page 61

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		nuclide concentrations, grams									
		basis =per B&W assembly, 0.409 mthm for grams									
	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
he 4	3.35E+01	3.54E+01	3.73E+01	3.90E+01	4.05E+01	4.20E+01	4.33E+01	4.46E+01	4.58E+01	4.79E+01	4.89E+01
tl206	4.85E-16	5.50E-16	6.14E-16	6.76E-16	7.36E-16	7.95E-16	8.53E-16	9.09E-16	9.64E-16	1.07E-15	1.12E-15
tl207	2.23E-11	2.48E-11	2.72E-11	2.96E-11	3.19E-11	3.42E-11	3.64E-11	3.85E-11	4.06E-11	4.46E-11	4.65E-11
tl208	5.88E-16	5.97E-16	6.07E-16	6.17E-16	6.27E-16	6.37E-16	6.48E-16	6.58E-16	6.69E-16	6.90E-16	7.01E-16

kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.23E-04	3.25E-04	3.27E-04	3.29E-04	3.31E-04	3.34E-04	3.36E-04	3.38E-04	3.40E-04	3.44E-04	3.46E-04	3.46E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 67

	initial	18000.0	yr20000.0	yr22000.0	yr24000.0	yr26000.0	yr28000.0	yr30000.0	yr32000.0	yr36000.0	yr38000.0	yr
	nuclide concentrations, grams											
	basis =per B&W assembly, 0.409 mthm for grams											
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	2.20E-17	2.87E-18	3.73E-19	4.86E-20	6.33E-21	8.24E-22	1.07E-22	1.40E-23	1.82E-24	3.08E-26	4.01E-27	
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.38E+02	1.38E+02	1.38E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.36E+02
nb 93	1.00E+00	1.13E+00	1.25E+00	1.38E+00	1.50E+00	1.62E+00	1.75E+00	1.87E+00	2.00E+00	2.24E+00	2.37E+00	

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	nuclide concentrations, grams											
	basis =per B&W assembly, 0.409 mthm for grams											
	initial	18000.0	yr20000.0	yr22000.0	yr24000.0	yr26000.0	yr28000.0	yr30000.0	yr32000.0	yr36000.0	yr38000.0	yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	8.73E-02	9.82E-02	1.09E-01	1.20E-01	1.31E-01	1.42E-01	1.53E-01	1.64E-01	1.74E-01	1.96E-01	2.07E-01	
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	4.54E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 71

0

	nuclide concentrations, grams											
	basis =per B&W assembly, 0.409 mthm for grams											
	initial	18000.0	yr20000.0	yr22000.0	yr24000.0	yr26000.0	yr28000.0	yr30000.0	yr32000.0	yr36000.0	yr38000.0	yr

ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.30E-09	7.26E-10	2.29E-10	7.20E-11	2.27E-11	7.14E-12	2.25E-12	7.08E-13	2.23E-13	2.21E-14	6.97E-15	
er166	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 81

nuclide concentrations, grams
basis = per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
he 4	4.89E+01	4.98E+01	5.19E+01	5.37E+01	5.52E+01	5.66E+01	5.78E+01	5.89E+01	6.33E+01	6.96E+01	7.18E+01
tl206	1.12E-15	1.17E-15	1.29E-15	1.40E-15	1.51E-15	1.61E-15	1.70E-15	1.79E-15	2.25E-15	2.72E-15	2.71E-15
tl207	4.65E-11	4.84E-11	5.27E-11	5.68E-11	6.06E-11	6.40E-11	6.72E-11	7.02E-11	8.33E-11	9.83E-11	9.99E-11
tl208	7.01E-16	7.12E-16	7.40E-16	7.68E-16	7.96E-16	8.25E-16	8.54E-16	8.84E-16	1.07E-15	1.74E-15	2.10E-15
tl209	2.12E-12	2.26E-12	2.62E-12	2.98E-12	3.33E-12	3.67E-12	4.01E-12	4.34E-12	6.15E-12	1.12E-11	1.21E-11
pb206	1.42E+00	1.57E+00	1.98E+00	2.42E+00	2.90E+00	3.42E+00	3.97E+00	4.54E+00	8.56E+00	2.54E+01	3.43E+01
pb207	7.31E-02	8.03E-02	9.97E-02	1.21E-01	1.43E-01	1.67E-01	1.92E-01	2.19E-01	3.96E-01	1.11E+00	1.49E+00
pb208	4.86E-04	4.87E-04	4.88E-04	4.89E-04	4.91E-04	4.92E-04	4.93E-04	4.95E-04	5.05E-04	5.51E-04	5.83E-04
pb209	8.96E-09	9.57E-09	1.11E-08	1.26E-08	1.41E-08	1.55E-08	1.69E-08	1.83E-08	2.60E-08	4.74E-08	5.12E-08
pb210	2.42E-03	2.53E-03	2.78E-03	3.03E-03	3.25E-03	3.47E-03	3.67E-03	3.85E-03	4.86E-03	5.86E-03	5.85E-03
pb211	3.60E-10	3.74E-10	4.08E-10	4.39E-10	4.69E-10	4.95E-10	5.20E-10	5.43E-10	6.45E-10	7.61E-10	7.72E-10
pb212	4.16E-13	4.22E-13	4.39E-13	4.55E-13	4.72E-13	4.89E-13	5.07E-13	5.24E-13	6.33E-13	1.03E-12	1.24E-12
pb214	5.63E-09	5.88E-09	6.48E-09	7.05E-09	7.58E-09	8.07E-09	8.54E-09	8.98E-09	1.13E-08	1.37E-08	1.36E-08
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.58E-01	2.93E-01	3.90E-01	5.00E-01	6.25E-01	7.63E-01	9.14E-01	1.08E+00	2.33E+00	9.35E+00	1.39E+01
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.49E-06	1.55E-06	1.71E-06	1.86E-06	2.00E-06	2.13E-06	2.26E-06	2.37E-06	2.99E-06	3.61E-06	3.60E-06
bi211	2.13E-11	2.22E-11	2.42E-11	2.60E-11	2.78E-11	2.94E-11	3.08E-11	3.22E-11	3.82E-11	4.51E-11	4.58E-11
bi212	3.94E-14	4.00E-14	4.16E-14	4.32E-14	4.48E-14	4.64E-14	4.80E-14	4.97E-14	6.00E-14	9.77E-14	1.18E-13
bi213	2.13E-09	2.28E-09	2.64E-09	3.00E-09	3.35E-09	3.69E-09	4.03E-09	4.36E-09	6.19E-09	1.13E-08	1.22E-08
bi214	4.18E-09	4.37E-09	4.81E-09	5.23E-09	5.63E-09	6.00E-09	6.34E-09	6.67E-09	8.41E-09	1.01E-08	1.01E-08
po210	4.11E-05	4.29E-05	4.73E-05	5.14E-05	5.53E-05	5.89E-05	6.23E-05	6.55E-05	8.26E-05	9.96E-05	9.94E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	2.36E-16	2.45E-16	2.67E-16	2.88E-16	3.07E-16	3.25E-16	3.41E-16	3.56E-16	4.22E-16	4.98E-16	5.06E-16
po212	2.07E-24	2.10E-24	2.19E-24	2.27E-24	2.35E-24	2.44E-24	2.52E-24	2.61E-24	3.15E-24	5.13E-24	6.19E-24
po213	3.20E-18	3.42E-18	3.97E-18	4.50E-18	5.03E-18	5.55E-18	6.06E-18	6.55E-18	9.30E-18	1.70E-17	1.83E-17
po214	5.75E-16	6.01E-16	6.62E-16	7.20E-16	7.74E-16	8.25E-16	8.72E-16	9.17E-16	1.16E-15	1.39E-15	1.39E-15
po215	3.01E-16	3.13E-16	3.42E-16	3.68E-16	3.92E-16	4.15E-16	4.36E-16	4.55E-16	5.40E-16	6.37E-16	6.47E-16
po216	1.60E-18	1.63E-18	1.69E-18	1.76E-18	1.82E-18	1.89E-18	1.95E-18	2.02E-18	2.44E-18	3.97E-18	4.79E-18
po218	6.64E-10	6.93E-10	7.64E-10	8.31E-10	8.93E-10	9.52E-10	1.01E-09	1.06E-09	1.33E-09	1.61E-09	1.61E-09
at217	2.57E-14	2.74E-14	3.18E-14	3.61E-14	4.03E-14	4.44E-14	4.85E-14	5.25E-14	7.45E-14	1.36E-13	1.47E-13
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	6.83E-13	7.10E-13	7.74E-13	8.34E-13	8.89E-13	9.40E-13	9.87E-13	1.03E-12	1.22E-12	1.44E-12	1.47E-12
rn220	6.26E-16	6.36E-16	6.61E-16	6.86E-16	7.11E-16	7.37E-16	7.63E-16	7.89E-16	9.53E-16	1.55E-15	1.87E-15

rn222	1.20E-06	1.25E-06	1.38E-06	1.50E-06	1.62E-06	1.72E-06	1.82E-06	1.91E-06	2.41E-06	2.91E-06	2.90E-06
fr221	2.38E-10	2.54E-10	2.94E-10	3.34E-10	3.73E-10	4.12E-10	4.49E-10	4.86E-10	6.90E-10	1.26E-09	1.36E-09
fr223	3.17E-12	3.29E-12	3.59E-12	3.87E-12	4.13E-12	4.36E-12	4.58E-12	4.78E-12	5.68E-12	6.70E-12	6.80E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	1.73E-07	1.80E-07	1.97E-07	2.12E-07	2.26E-07	2.39E-07	2.51E-07	2.62E-07	3.11E-07	3.67E-07	3.72E-07
ra224	3.63E-12	3.68E-12	3.83E-12	3.97E-12	4.12E-12	4.27E-12	4.42E-12	4.57E-12	5.52E-12	8.98E-12	1.08E-11
ra225	1.05E-06	1.13E-06	1.30E-06	1.48E-06	1.65E-06	1.82E-06	1.99E-06	2.15E-06	3.06E-06	5.58E-06	6.03E-06
ra226	1.87E-01	1.95E-01	2.15E-01	2.34E-01	2.51E-01	2.68E-01	2.83E-01	2.98E-01	3.76E-01	4.53E-01	4.52E-01
ra228	8.50E-10	8.98E-10	1.02E-09	1.14E-09	1.26E-09	1.38E-09	1.50E-09	1.62E-09	2.35E-09	4.77E-09	5.97E-09
ac225	7.11E-07	7.60E-07	8.81E-07	1.00E-06	1.12E-06	1.23E-06	1.34E-06	1.45E-06	2.06E-06	3.77E-06	4.07E-06
ac227	1.23E-04	1.28E-04	1.39E-04	1.50E-04	1.60E-04	1.69E-04	1.77E-04	1.85E-04	2.20E-04	2.60E-04	2.64E-04
ac228	1.04E-13	1.10E-13	1.24E-13	1.39E-13	1.54E-13	1.69E-13	1.83E-13	1.98E-13	2.87E-13	5.82E-13	7.29E-13
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	2.85E-07	2.96E-07	3.23E-07	3.48E-07	3.71E-07	3.92E-07	4.12E-07	4.30E-07	5.11E-07	6.02E-07	6.12E-07
th228	7.05E-10	7.16E-10	7.43E-10	7.72E-10	8.00E-10	8.29E-10	8.59E-10	8.88E-10	1.07E-09	1.75E-09	2.11E-09
th229	2.08E-01	2.23E-01	2.58E-01	2.93E-01	3.27E-01	3.61E-01	3.94E-01	4.26E-01	6.05E-01	1.10E+00	1.19E+00
th230	9.42E+00	9.81E+00	1.07E+01	1.16E+01	1.24E+01	1.32E+01	1.39E+01	1.46E+01	1.78E+01	2.16E+01	2.14E+01
th231	3.26E-08	3.28E-08	3.33E-08	3.37E-08	3.40E-08	3.43E-08	3.45E-08	3.48E-08	3.56E-08	3.61E-08	3.62E-08

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 82

	initial	nuclide concentrations, grams									
		basis = per B&W assembly, 0.409 mthm for grams									
	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr	
th232	2.11E+00	2.23E+00	2.53E+00	2.84E+00	3.14E+00	3.44E+00	3.74E+00	4.04E+00	5.85E+00	1.19E+01	1.49E+01
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	1.88E-01	1.95E-01	2.13E-01	2.30E-01	2.45E-01	2.59E-01	2.72E-01	2.84E-01	3.37E-01	3.97E-01	4.04E-01
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.82E-05	1.82E-05	1.82E-05	1.82E-05	1.81E-05	1.81E-05	1.81E-05	1.80E-05	1.79E-05	1.73E-05	1.70E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.57E-08	1.55E-08	1.50E-08	1.46E-08	1.41E-08	1.37E-08	1.33E-08	1.29E-08	1.08E-08	5.90E-09	4.36E-09
u233	5.95E+00	6.24E+00	6.95E+00	7.64E+00	8.32E+00	8.98E+00	9.62E+00	1.03E+01	1.37E+01	2.22E+01	2.51E+01
u234	1.02E+02	1.02E+02	1.00E+02	9.94E+01	9.83E+01	9.73E+01	9.62E+01	9.52E+01	8.94E+01	7.33E+01	6.68E+01
u235	8.03E+03	8.07E+03	8.18E+03	8.28E+03	8.36E+03	8.43E+03	8.50E+03	8.55E+03	8.75E+03	8.89E+03	8.89E+03
u236	2.06E+03	2.06E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.06E+03	2.06E+03
u237	1.04E-13	8.84E-14	5.88E-14	3.91E-14	2.60E-14	1.73E-14	1.15E-14	7.65E-15	6.62E-16	1.90E-19	3.22E-21
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.18E-18	2.29E-18	2.57E-18	2.84E-18	3.10E-18	3.37E-18	3.63E-18	3.89E-18	5.40E-18	9.79E-18	1.17E-17
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	2.95E-04	2.91E-04	2.83E-04	2.74E-04	2.66E-04	2.58E-04	2.51E-04	2.43E-04	2.03E-04	1.11E-04	8.21E-05
np237	5.37E+02	5.36E+02	5.35E+02	5.34E+02	5.34E+02	5.33E+02	5.32E+02	5.31E+02	5.26E+02	5.09E+02	5.01E+02
np238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	2.43E-07	2.02E-07	1.26E-07	7.87E-08	4.92E-08	3.07E-08	1.92E-08	1.20E-08	7.14E-10	7.13E-14	1.30E-14
np240m	1.86E-20	1.96E-20	2.19E-20	2.42E-20	2.65E-20	2.88E-20	3.10E-20	3.32E-20	4.60E-20	8.36E-20	9.96E-20
np240	1.92E-22	2.01E-22	2.25E-22	2.49E-22	2.73E-22	2.96E-22	3.19E-22	3.42E-22	4.74E-22	8.60E-22	1.02E-21
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	6.62E-10	6.54E-10	6.34E-10	6.15E-10	5.97E-10	5.79E-10	5.62E-10	5.46E-10	4.55E-10	2.49E-10	1.84E-10
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.87E+02	8.37E+02	7.25E+02	6.28E+02	5.44E+02	4.71E+02	4.08E+02	3.54E+02	1.49E+02	8.42E+00	2.00E+00
pu240	1.22E+01	9.85E+00	5.81E+00	3.42E+00	2.02E+00	1.19E+00	7.02E-01	4.14E-01	1.74E-02	4.50E-07	2.34E-09
pu241	3.44E-06	2.92E-06	1.94E-06	1.29E-06	8.59E-07	5.71E-07	3.80E-07	2.53E-07	2.19E-08	6.27E-12	1.06E-13
pu242	6.60E+01	6.58E+01	6.52E+01	6.46E+01	6.40E+01	6.34E+01	6.28E+01	6.22E+01	5.89E+01	4.89E+01	4.46E+01

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 95

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr	
nuclide concentrations, grams												
basis =per B&W assembly, 0.409 mthm for grams												
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cs135	1.75E+02	1.75E+02	1.75E+02	1.75E+02	1.74E+02	1.74E+02	1.74E+02	1.74E+02	1.72E+02	1.67E+02	1.64E+02	
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ba135	2.06E+00	2.16E+00	2.43E+00	2.69E+00	2.95E+00	3.21E+00	3.48E+00	3.74E+00	5.30E+00	1.04E+01	1.29E+01	

1 pm154m .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00 .00E+00
 0 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay nuclide concentrations, grams fission products page 99

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 100

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nuclide concentrations, grams											
basis =per B&W assembly, 0.409 mthm for grams											
	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	6.97E-15	2.20E-15	1.22E-16	6.81E-18	3.79E-19	2.11E-20	1.17E-21	6.54E-23	1.95E-30	.00E+00	.00E+00
er166	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

actinides page 101

0

nuclide concentrations, grams				
basis =per B&W assembly, 0.409 mthm for grams				
	initial	300000. yr	500000. yr	999999. yr
he 4	7.18E+01	7.39E+01	8.21E+01	9.90E+01
tl206	2.71E-15	2.61E-15	2.01E-15	1.18E-15
tl207	9.99E-11	1.00E-10	1.01E-10	1.01E-10
tl208	2.10E-15	2.46E-15	3.99E-15	7.90E-15

tl209	1.21E-11	1.33E-11	1.59E-11	1.52E-11
pb206	3.43E+01	4.31E+01	7.35E+01	1.23E+02
pb207	1.49E+00	1.87E+00	3.42E+00	7.27E+00
pb208	5.83E-04	6.21E-04	8.35E-04	1.82E-03
pb209	5.12E-08	5.61E-08	6.74E-08	6.41E-08
pb210	5.85E-03	5.63E-03	4.33E-03	2.55E-03
pb211	7.72E-10	7.77E-10	7.79E-10	7.78E-10
pb212	1.24E-12	1.46E-12	2.37E-12	4.68E-12
pb214	1.36E-08	1.31E-08	1.01E-08	5.95E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00
bi209	1.39E+01	1.89E+01	4.26E+01	1.06E+02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00
bi210	3.60E-06	3.47E-06	2.67E-06	1.57E-06
bi211	4.58E-11	4.60E-11	4.62E-11	4.61E-11
bi212	1.18E-13	1.39E-13	2.24E-13	4.44E-13
bi213	1.22E-08	1.34E-08	1.60E-08	1.53E-08
bi214	1.01E-08	9.74E-09	7.50E-09	4.42E-09
po210	9.94E-05	9.57E-05	7.37E-05	4.34E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00
po211	5.06E-16	5.09E-16	5.10E-16	5.10E-16
po212	6.19E-24	7.28E-24	1.18E-23	2.33E-23
po213	1.83E-17	2.01E-17	2.41E-17	2.30E-17
po214	1.39E-15	1.34E-15	1.03E-15	6.08E-16
po215	6.47E-16	6.50E-16	6.52E-16	6.52E-16
po216	4.79E-18	5.63E-18	9.13E-18	1.81E-17
po218	1.61E-09	1.55E-09	1.19E-09	7.01E-10
at217	1.47E-13	1.61E-13	1.93E-13	1.84E-13
rn218	.00E+00	.00E+00	.00E+00	.00E+00
rn219	1.47E-12	1.47E-12	1.48E-12	1.48E-12
rn220	1.87E-15	2.20E-15	3.57E-15	7.05E-15
rn222	2.90E-06	2.80E-06	2.15E-06	1.27E-06
fr221	1.36E-09	1.49E-09	1.79E-09	1.70E-09
fr223	6.80E-12	6.84E-12	6.86E-12	6.86E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00
ra223	3.72E-07	3.74E-07	3.75E-07	3.75E-07
ra224	1.08E-11	1.27E-11	2.06E-11	4.09E-11
ra225	6.03E-06	6.60E-06	7.92E-06	7.54E-06
ra226	4.52E-01	4.35E-01	3.35E-01	1.97E-01
ra228	5.97E-09	7.18E-09	1.20E-08	2.39E-08
ac225	4.07E-06	4.46E-06	5.35E-06	5.09E-06
ac227	2.64E-04	2.65E-04	2.66E-04	2.66E-04
ac228	7.29E-13	8.76E-13	1.46E-12	2.91E-12
th226	.00E+00	.00E+00	.00E+00	.00E+00
th227	6.12E-07	6.15E-07	6.17E-07	6.17E-07
th228	2.11E-09	2.48E-09	4.01E-09	7.94E-09
th229	1.19E+00	1.31E+00	1.57E+00	1.49E+00
th230	2.14E+01	2.06E+01	1.60E+01	9.46E+00
th231	3.62E-08	3.62E-08	3.62E-08	3.61E-08

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

actinides page 102

	initial	300000. yr	500000. yr	999999. yr
th232	1.49E+01	1.79E+01	2.98E+01	5.93E+01
th233	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	4.04E-01	4.06E-01	4.07E-01	4.07E-01
pa232	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.70E-05	1.67E-05	1.57E-05	1.33E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10

pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00
u232	4.36E-09	3.23E-09	9.67E-10	4.75E-11
u233	2.51E+01	2.73E+01	3.16E+01	3.05E+01
u234	6.68E+01	6.12E+01	4.51E+01	2.91E+01
u235	8.89E+03	8.89E+03	8.89E+03	8.89E+03
u236	2.06E+03	2.06E+03	2.05E+03	2.01E+03
u237	3.22E-21	5.45E-23	4.48E-30	.00E+00
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.17E-17	1.34E-17	1.87E-17	2.53E-17
u241	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00
np236	8.21E-05	6.08E-05	1.82E-05	8.93E-07
np237	5.01E+02	4.93E+02	4.62E+02	3.93E+02
np238	.00E+00	.00E+00	.00E+00	.00E+00
np239	1.30E-14	1.25E-14	1.24E-14	1.21E-14
np240m	9.96E-20	1.14E-19	1.59E-19	2.16E-19
np240	1.02E-21	1.17E-21	1.64E-21	2.22E-21
np241	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.84E-10	1.36E-10	4.08E-11	2.01E-12
pu237	.00E+00	.00E+00	.00E+00	.00E+00
pu238	.00E+00	.00E+00	.00E+00	.00E+00
pu239	2.00E+00	4.75E-01	1.51E-03	4.61E-08
pu240	2.34E-09	6.49E-11	7.61E-11	1.03E-10
pu241	1.06E-13	1.80E-15	1.48E-22	.00E+00
pu242	4.46E+01	4.06E+01	2.80E+01	1.11E+01
pu243	1.11E-15	1.11E-15	1.10E-15	1.08E-15
pu244	5.91E-07	6.77E-07	9.45E-07	1.28E-06
pu245	.00E+00	.00E+00	.00E+00	.00E+00
pu246	5.90E-26	8.06E-27	2.79E-30	.00E+00
am239	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00
am241	3.20E-12	5.42E-14	4.70E-21	9.14E-39
am242m	.00E+00	.00E+00	.00E+00	.00E+00
am242	.00E+00	.00E+00	.00E+00	.00E+00
am243	1.52E-08	1.45E-08	1.44E-08	1.41E-08
am244m	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.48E-28	2.01E-29	6.97E-33	1.55E-41
cm241	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

actinides

page 103

	nuclide concentrations, grams basis =per B&W assembly, 0.409 mthm for grams			
	initial	300000. yr	500000. yr	999999. yr
cm242	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00
cm245	6.39E-11	1.08E-12	8.90E-20	1.73E-37
cm246	3.85E-19	2.26E-21	9.53E-25	2.13E-33
cm247	3.21E-05	3.20E-05	3.17E-05	3.10E-05
cm248	9.86E-07	8.91E-07	5.92E-07	2.14E-07
cm249	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.41E-19	1.92E-20	6.65E-24	1.48E-32
cm251	.00E+00	.00E+00	.00E+00	.00E+00

bk249	.00E+00	.00E+00	.00E+00	.00E+00
bk250	4.15E-28	5.67E-29	1.96E-32	.00E+00
bk251	.00E+00	.00E+00	.00E+00	.00E+00
cf249	.00E+00	.00E+00	.00E+00	.00E+00
cf250	1.48E-23	2.02E-24	7.00E-28	1.56E-36
cf251	.00E+00	.00E+00	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 104

		initial300000.	yr500000.	yr999999.	yr
		nuclide concentrations, grams			
		basis =per B&W assembly, 0.409 mthm for grams			
h	3	.00E+00	.00E+00	.00E+00	.00E+00
li	6	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li	7	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be	9	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be	10	3.31E-05	3.24E-05	2.97E-05	2.40E-05
c	14	5.45E-19	1.29E-21	3.98E-32	.00E+00
ni	66	.00E+00	.00E+00	.00E+00	.00E+00
cu	66	.00E+00	.00E+00	.00E+00	.00E+00
zn	66	1.75E-07	1.75E-07	1.75E-07	1.75E-07
cu	67	.00E+00	.00E+00	.00E+00	.00E+00
zn	67	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn	68	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn	69	.00E+00	.00E+00	.00E+00	.00E+00
zn	69m	.00E+00	.00E+00	.00E+00	.00E+00
ga	69	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn	70	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga	70	.00E+00	.00E+00	.00E+00	.00E+00
ge	70	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn	71	.00E+00	.00E+00	.00E+00	.00E+00
zn	71m	.00E+00	.00E+00	.00E+00	.00E+00
ga	71	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge	71	.00E+00	.00E+00	.00E+00	.00E+00
ge	71m	.00E+00	.00E+00	.00E+00	.00E+00
co	72	.00E+00	.00E+00	.00E+00	.00E+00
ni	72	.00E+00	.00E+00	.00E+00	.00E+00
cu	72	.00E+00	.00E+00	.00E+00	.00E+00
zn	72	.00E+00	.00E+00	.00E+00	.00E+00
ga	72	.00E+00	.00E+00	.00E+00	.00E+00
ge	72	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co	73	.00E+00	.00E+00	.00E+00	.00E+00
ni	73	.00E+00	.00E+00	.00E+00	.00E+00
cu	73	.00E+00	.00E+00	.00E+00	.00E+00
zn	73	.00E+00	.00E+00	.00E+00	.00E+00
ga	73	.00E+00	.00E+00	.00E+00	.00E+00
ge	73	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge	73m	.00E+00	.00E+00	.00E+00	.00E+00
co	74	.00E+00	.00E+00	.00E+00	.00E+00
ni	74	.00E+00	.00E+00	.00E+00	.00E+00
cu	74	.00E+00	.00E+00	.00E+00	.00E+00

zn 74	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 105

	initial	300000. yr	500000. yr	999999. yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00
se 79	7.33E-03	2.56E-03	3.83E-05	1.05E-09
se 79m	.00E+00	.00E+00	.00E+00	.00E+00
br 79	1.39E+00	1.40E+00	1.40E+00	1.40E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

ga 81	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	3.16E-07	2.68E-07	1.40E-07	2.75E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 106

	initial	300000. yr	500000. yr	999999. yr
nuclide concentrations, grams basis =per B&W assembly, 0.409 mthm for grams				
ge 82	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00

kr 87	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	5.68E-04	6.20E-04	8.30E-04	1.35E-03
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 107

	initial300000.	yr500000.	yr999999.	yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	.00E+00	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.27E-08	3.26E-08	3.25E-08	3.22E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.24E+02	1.21E+02	1.11E+02	8.82E+01
nb 93	1.49E+01	1.76E+01	2.81E+01	5.06E+01

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

nb 93m 1.31E-03 1.28E-03 1.17E-03 9.30E-04
 br 94 .00E+00 .00E+00 .00E+00 .00E+00
 kr 94 .00E+00 .00E+00 .00E+00 .00E+00
 rb 94 .00E+00 .00E+00 .00E+00 .00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
 nuclide concentrations, grams
 basis =per B&W assembly, 0.409 mthm for grams

fission products page 108

	initial	300000. yr	500000. yr	999999. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	2.45E-08	4.44E-09	4.80E-12	1.84E-19
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.31E-03	1.30E-03	1.26E-03	1.16E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	1.01E+02	8.61E+01	4.46E+01	8.64E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.29E+02	1.44E+02	1.86E+02	2.22E+02
rb100	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00

1 y100 .00E+00 .00E+00 .00E+00 .00E+00

0 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 109

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products page 110

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	nuclide concentrations, grams basis =per B&W assembly, 0.409 mthm for grams			
	initial300000.	yr500000.	yr999999.	yr
y106	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00
pd107	4.98E+01	4.96E+01	4.85E+01	4.60E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00
ag107	1.35E+00	1.61E+00	2.66E+00	5.18E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	.00E+00	.00E+00	.00E+00	.00E+00
cd108	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 111

0

	nuclide concentrations, grams basis =per B&W assembly, 0.409 mthm for grams			
	initial300000.	yr500000.	yr999999.	yr

cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02
in113m	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
 nuclide concentrations, grams
 basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00

rh116	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 113

	initial	300000.	yr500000.	yr999999.	yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

basis =per B&W assembly, 0.409 mthm for grams

sn121m	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00
sn126	8.64E-01	6.11E-01	1.53E-01	4.77E-03

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 114

	initial	300000. yr	500000. yr	999999. yr
sb126	4.10E-08	2.90E-08	7.25E-09	2.27E-10
sb126m	3.12E-10	2.21E-10	5.52E-11	1.72E-12
te126	4.10E+00	4.35E+00	4.81E+00	4.96E+00
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

sn127m	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.94E+01	4.93E+01	4.89E+01	4.78E+01
xe129	5.50E-01	6.58E-01	1.09E+00	2.16E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 115

	initial	300000. yr	500000. yr	999999. yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

sb133	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.64E+02	1.62E+02	1.52E+02	1.31E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00
ba135	1.29E+01	1.54E+01	2.48E+01	4.61E+01
ba135m	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

fission products page 116

	initial	300000.	yr500000.	yr999999.	yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03

sb139	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 117

	initial	300000.	yr500000.	yr999999.	yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cs145	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.57E-03	2.57E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products page 118

	initial	300000. yr	500000. yr	999999. yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

ce151	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00
eu151	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 119

	nuclide concentrations, grams basis =per B&W assembly, 0.409' mthm for grams			
	initial	300000. yr	500000. yr	999999. yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00

eu157	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

fission products page 120

	initial	300000.	yr500000.	yr999999.	yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

```

ho166 .00E+00 .00E+00 .00E+00 .00E+00
ho166m .00E+00 .00E+00 .00E+00 .00E+00
er166 1.57E-03 1.57E-03 1.57E-03 1.57E-03
er167 2.44E-05 2.44E-05 2.44E-05 2.44E-05
er167m .00E+00 .00E+00 .00E+00 .00E+00
er168 2.01E-05 2.01E-05 2.01E-05 2.01E-05
yb168 .00E+00 .00E+00 .00E+00 .00E+00
er169 .00E+00 .00E+00 .00E+00 .00E+00
tm169 7.41E-07 7.41E-07 7.41E-07 7.41E-07
yb169 .00E+00 .00E+00 .00E+00 .00E+00
er170 7.89E-07 7.89E-07 7.89E-07 7.89E-07
tm170 .00E+00 .00E+00 .00E+00 .00E+00
tm170m .00E+00 .00E+00 .00E+00 .00E+00
yb170 4.62E-09 4.62E-09 4.62E-09 4.62E-09
er171 .00E+00 .00E+00 .00E+00 .00E+00
tm171 .00E+00 .00E+00 .00E+00 .00E+00
yb171 1.05E-06 1.05E-06 1.05E-06 1.05E-06
er172 .00E+00 .00E+00 .00E+00 .00E+00
tm172 .00E+00 .00E+00 .00E+00 .00E+00
yb172 6.73E-07 6.73E-07 6.73E-07 6.73E-07
total 9.58E+03 9.58E+03 9.58E+03 9.58E+03
    
```

1 * normal termination of execution *

0 table of contents for material tables
 0 case or subcase printed page

```

1
2
3
4
5
6
1
21
41
61
81
101
    
```

```

Ondset 21 33 4 1 27 6 0 0 0 0 0
      0 0 0 0 0 0 0 -1 1698 690 130
      880 7935 0 0 5 99 4 20 95 18 18
      18 0 71
0 35$ array 1 entries read
0 0t
0 54$$ a8 1 e
0 56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e 5t
0 56$ array 20 entries read
0 5t
  190 97344
  1116 60787
  132 33663 nudata (library) storage size
  144 33734
  1103 75921
61** f1-20
65$$ a4 1 2z 1 2z 1 5z 1 2z 1
a25 1 2z 1 2z 1 5z 1 2z 1
a46 1 2z 1 2z 1 5z 1 2z 1 e
0 60* array 7 entries read
0 65$ array 63 entries read
0 6t
  1140 66851
  used 100723 in size 150000
Ojopt 0 12 0 0 0 0 0 0 0 0 0
      0 0
Othem 4
    
```



```

5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non      5
      7935      20      6      18      1697
0mmn      19      7      0      0      1      1      0      0      0
      21      100      -1      4      3      0      4      0      0
0tconst   5
8.640000E+04 .000000E+00 .000000E+00 .000000E+00 5.000000E-02
0mzero    4
      0      689      129      879
0pow      3
.000000E+00 .000000E+00 .000000E+00
0 linp    9
      6      0      51      26      2      3000      1000      1697      5
0 case or subcase 1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$$ 0 -6 a10 1 e t
0 56$ array 20 entries read
0 57* array 5 entries read
0 5t
  l90 102444
  l116 66199
  l32 33663 nudata (library) storage size
  l44 33734
  l103 81099
61** f1-20
65$$ a4 1 2z 1 2z 1 5z 1 2z 1
a25 1 2z 1 2z 1 5z 1 2z 1
a46 1 2z 1 2z 1 5z 1 2z 1 e
0 60* array 10 entries read
0 65$ array 63 entries read
0 6t
  l140 71957
  used 107068 in size 150000
0jopt     12
      0      0      0      0      0      0      0      0      0
      0      0
0therm    4
5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non      5
      7935      20      6      18      1697
0mmn      19      10      0      0      1      1      0      0      7
      21      100      0      5      0      0      4      0      0
0tconst   5
3.156000E+07 1.000000E+01 2.300000E+01 .000000E+00 5.000000E-02
0mzero    4
      18      689      129      879
0pow      3
.000000E+00 .000000E+00 .000000E+00
0 linp    9
      6      0      51      26      2      3000      1000      1697      5
0 case or subcase 2 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$ array 20 entries read
0 57* array 5 entries read
0 5t
  l90 102444
  l116 66199
  l32 33663 nudata (library) storage size
  l44 33734
  l103 81099

```

```

61** f1-20
0 60* array      10 entries read
0 65$ array      63 entries read
0 6t
  l140 71957
  used 107068 in size 150000
0jopt          12
      0          0          0          0          0          0          0          0          0
      0          0
0therm         4
5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non           5
      7935      20          6          18          1697
0mmn           19
      0          10          0          0          1          1          0          0          0          10
      21          100         0          5          0          0          4          0          0
0tconst        5
3.156000E+07 4.000000E+02 2.800000E+01 .000000E+00 5.000000E-02
0mzero         4
      21          689         129         879
0pow           3
.000000E+00 .000000E+00 .000000E+00
0 linp         9
      6          0          51         26          2          3000         1000         1697         5
0 case or subcase 3 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$ array      20 entries read
0 57* array      5 entries read
0 5t
  l90 102444
  l116 66199
  l32 33663 nudata (library) storage size
  l44 33734
  l103 81099
61** f1-20
0 60* array      10 entries read
0 65$ array      63 entries read
0 6t
  l140 71957
  used 107068 in size 150000
0jopt          12
      0          0          0          0          0          0          0          0          0
      0          0
0therm         4
5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non           5
      7935      20          6          18          1697
0mmn           19
      0          10          0          0          1          1          0          0          0          10
      21          100         0          5          0          0          4          0          0
0tconst        5
3.156000E+07 1.600000E+04 2.500000E+01 .000000E+00 5.000000E-02
0mzero         4
      21          689         129         879
0pow           3
.000000E+00 .000000E+00 .000000E+00
0 linp         9
      6          0          51         26          2          3000         1000         1697         5
0 case or subcase 4 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$ array      20 entries read
0 57* array      5 entries read

```

```

0 5t
  l90 102444
  l116 66199
  l32 33663 nudata (library) storage size
  l44 33734
  l103 81099
  61** f1-20
0 60* array 10 entries read
0 65$ array 63 entries read
0 6t
  l140 71957
  used 107068 in size 150000
0jopt 12
  0 0 0 0 0 0 0 0 0 0
0therm 4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non 5
  7935 20 6 18 1697
0mmn 19
  0 10 0 0 1 1 0 0 0 10
  21 100 0 5 0 0 4 0 0
0tconst 5
  3.156000E+07 3.800000E+04 2.500000E+01 .000000E+00 5.000000E-02
0mzero 4
  21 689 129 879
0pow 3
  .000000E+00 .000000E+00 .000000E+00
0 linp 9
  6 0 51 26 2 3000 1000 1697 5
0 case or subcase 5 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$ array 20 entries read
0 57* array 5 entries read
0 5t
  l90 90544
  l116 53571
  l32 33663 nudata (library) storage size
  l44 33734
  l103 69017
  61** f1-20
0 60* array 3 entries read
0 65$ array 63 entries read
0 6t
  l140 60057
  used 92263 in size 150000
0jopt 12
  0 0 0 0 0 0 0 0 0 0
0therm 4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non 5
  7935 20 6 18 1697
0mmn 19
  0 3 0 0 1 1 0 0 0 10
  21 100 0 5 0 0 4 0 0
0tconst 5
  3.156000E+07 2.500000E+05 2.600000E+01 .000000E+00 5.000000E-02
0mzero 4
  21 689 129 879
0pow 3
  
```

```
.000000E+00 .000000E+00 .000000E+00
0 linp          9
      6          0          51          26          2          3000          1000          1697          5
0 case or subcase 6 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0 56$$ 0 -10 a10 1 e t
0 56$ array      20 entries read
0 0t
```

SAS2H Number Density Worksheet:

Number Density = (mass/assembly) / (volume) * (Na) / (Aw) * correction to 96% density for fresh fuel
Avogadro's Number [Na] 0.602252
Atomic Weight [Aw]

Volume= Pi X .468122 X .468122 X 360.172 X 208
= 51575.24014
SAS2H UO2 density=10.206
Correction to 96% density
1.030928
U mass=.464kg
UO2 mass= 526.38 kg

Isotope List:

Table with columns: Element, Symbol, Isotope, MCNP ID, Atomic Weight, ORIGINS ID. Lists isotopes from Oxygen to Curium.

Number Density = grams/assembly / Assembly Volume * Avagadro's Number / Atomic Weight
* (Density Correction to 96% TD) * (Isotopic Correction Factor)

For Time Effects Cases, the Isotopic Correction Factor is set to 1.0.

Time Effects Curve

BURNUP: PWR 20 Gwd/MT
ENRICHMENT: 3.00%
DECAY TIME: 5 YEARS
PWR B&W 15x15, 3.00% , Burnup 20 Gwd/MTHM
DECAY TIME: 5 YEARS
Volume 51575.24 pwr 3.0% 20 GW

Table with columns: ISOTOPE, GRAMS/Ass, %, Aw, MCNP ID, Number Density. Lists isotopes and their respective masses and densities.

oxygen mass/assembly = 464000 g UO / ((1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

Effective density = 62377.29 / 10.03719

Time Effects Curve

BURNUP: PWR 20 Gwd/MT
ENRICHMENT: 3.00%
DECAY TIME: 10 YEARS
PWR B&W 15x15, 3.00% , Burnup 20 Gwd/MTHM
DECAY TIME: 10 YEARS
Volume 51575.24 pwr 3.0% 20 Gwd/MT

Table with columns: ISOTOPE, GRAMS/Ass, %, Aw, MCNP ID, Number Density. Lists isotopes and their respective masses and densities for a 10-year decay period.

u233	1.40E-03	0.000%	1	233.0395	92233.50C	7.2321E-11
u234	8.28E+01	0.016%	1	234.0409	92234.50C	4.2590E-06
u235	6.30E+03	1.217%	1	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	1	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	1.30E+02	0.025%	1	237.0481	93237.55C	6.6019E-06
pu238	2.81E+01	0.005%	1	238.0495	94238.50C	1.4210E-06
pu239	2.63E+03	0.508%	1	239.0521	94239.55C	1.3244E-04
pu240	6.72E+02	0.130%	1	240.0539	94240.50C	3.3700E-05
pu241	2.50E+02	0.048%	1	241.0567	94241.50C	1.2485E-05
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.71E+02	0.033%	1	241.0567	95241.50C	8.5397E-06
am242m	4.11E-01	0.000%	1	242.0595	95242.50C	2.0440E-08
am243	1.01E+01	0.002%	1	243.0614	95243.50C	5.0023E-07
total	517683.707	100.00%			Total	7.005804E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03745

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 20 YEARS
 DECADE TIME: 20 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number
O 16	62377.29	12.049%	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	98.90628	43099.50C	2.8118E-05
ru101	2.18E+02	0.042%	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	144.9125	60145.50C	1.6864E-05
sm147	8.94E+01	0.017%	146.9149	62147.50C	7.3255E-06
sm149	1.42E+00	0.000%	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	149.9173	62150.50C	6.4561E-06
sm151	5.32E+00	0.001%	150.9199	62151.50C	4.2436E-07
eu151	9.01E-01	0.000%	150.9198	63151.55C	7.1869E-08
sm152	3.74E+01	0.007%	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	152.9212	63153.55C	2.1255E-06
gd155	3.02E+00	0.001%	154.9227	64155.50C	2.3467E-07
u233	1.81E-03	0.000%	233.0395	92233.50C	9.3501E-11
u234	8.49E+01	0.016%	234.0409	92234.50C	4.3870E-06
u235	6.30E+03	1.217%	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.380%	238.0508	92238.50C	2.2352E-02
np237	1.33E+02	0.026%	237.0481	93237.55C	6.7543E-06
pu238	2.60E+01	0.005%	238.0495	94238.50C	1.3148E-06
pu239	2.63E+03	0.508%	239.0521	94239.55C	1.3244E-04
pu240	6.71E+02	0.130%	240.0539	94240.50C	3.3650E-05
pu241	1.54E+02	0.030%	241.0567	94241.50C	7.6907E-06
pu242	7.08E+01	0.014%	242.0587	94242.50C	3.5211E-06
am241	2.63E+02	0.051%	241.0567	95241.50C	1.3134E-05
am242m	3.91E-01	0.000%	242.0595	95242.50C	1.9446E-08
am243	1.01E+01	0.002%	243.0614	95243.50C	5.0023E-07
total	517686.244	100.00%		Total	7.005831E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.0375

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 50 YEARS

DECAY TIME: 50 YEARS			Volume 51575.24	pwr 3.0%	20 GWd/MT
ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	6.4561E-06
sm151	4.22E+00	0.001%	1	150.9199	3.3661E-07
eu151	2.00E+00	0.000%	1	150.9198	1.5953E-07
sm152	3.74E+01	0.007%	1	151.9198	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	2.4710E-07
u233	3.16E-03	0.000%	1	233.0395	1.6324E-10
u234	9.03E+01	0.017%	1	234.0409	4.6447E-06
u235	6.30E+03	1.217%	1	235.0439	3.2267E-04
u236	1.42E+03	0.274%	1	236.0456	7.2420E-05
u238	4.42E+05	85.378%	1	238.0508	2.2352E-02
np237	1.49E+02	0.029%	1	237.0481	7.5669E-06
pu238	2.06E+01	0.004%	1	238.0495	1.0418E-06
pu239	2.63E+03	0.508%	1	239.0521	1.3244E-04
pu240	6.70E+02	0.129%	1	240.0539	3.3599E-05
pu241	3.62E+01	0.007%	1	241.0567	1.8078E-06
pu242	7.08E+01	0.014%	1	242.0587	3.5211E-06
am241	3.85E+02	0.071%	1	241.0567	1.8228E-05
am242m	3.38E-01	0.000%	1	242.0595	1.6810E-08
am243	1.00E+01	0.002%	1	243.0614	4.9528E-07
total	517695.751	100.00%		Total	7.005883E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03768

Time Effects Curve

BURNUP: PWR 20 GWd/MT			PWR B&W 15x15, 3.00%	Burnup 20 GWd/MTHM	
ENRICHMENT: 3.00%			DECAY TIME: 100 YEARS		
DECAY TIME: 100 YEARS			Volume 51575.24	pwr 3.0%	20 GWd/MT
ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	6.4561E-06
sm151	2.87E+00	0.001%	1	150.9199	2.2893E-07
eu151	3.35E+00	0.001%	1	150.9198	2.6722E-07
sm152	3.74E+01	0.007%	1	151.9198	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	2.4710E-07
u233	5.76E-03	0.000%	1	233.0395	2.9755E-10
u234	9.69E+01	0.019%	1	234.0409	4.9842E-06
u235	6.31E+03	1.219%	1	235.0439	3.2318E-04

u236	1.42E+03	0.274%	1	236.0456	92236.50C	7.2420E-05
u238	4.42E+05	85.379%	1	238.0508	92238.50C	2.2352E-02
np237	1.78E+02	0.034%	1	237.0481	93237.55C	9.0396E-06
pu238	1.39E+01	0.003%	1	238.0495	94238.50C	7.0293E-07
pu239	2.62E+03	0.506%	1	239.0521	94239.55C	1.3194E-04
pu240	6.66E+02	0.129%	1	240.0539	94240.50C	3.3399E-05
pu241	3.23E+00	0.001%	1	241.0567	94241.50C	1.6131E-07
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	3.68E+02	0.071%	1	241.0567	95241.50C	1.8378E-05
am242m	2.64E-01	0.000%	1	242.0595	95242.50C	1.3129E-08
am243	9.99E+00	0.002%	1	243.0614	95243.50C	4.9478E-07
total	517689.6	100.00%			Total	7.005849E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.03756

Time Effects Curve

BURNUP: PWR 20 GwD/MT PWR B&W 15x15, 3.00% , Burnup 20 GwD/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 200 YEARS
 DECAY TIME: 200 YEARS Volume 51575.24 pwr 3.0% 20 GwD/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	148.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	1.33E+00	0.000%	1	150.9199	62151.50C	1.0609E-07
eu151	4.89E+00	0.001%	1	150.9198	63151.55C	3.9006E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.23E-02	0.000%	1	233.0395	92233.50C	6.3539E-10
u234	1.04E+02	0.020%	1	234.0409	92234.50C	5.3494E-06
u235	6.31E+03	1.219%	1	235.0439	92235.50C	3.2318E-04
u236	1.43E+03	0.276%	1	236.0456	92236.50C	7.2930E-05
u238	4.42E+05	85.379%	1	238.0508	92238.50C	2.2352E-02
np237	2.32E+02	0.045%	1	237.0481	93237.55C	1.1782E-05
pu238	6.36E+00	0.001%	1	238.0495	94238.50C	3.2163E-07
pu239	2.62E+03	0.506%	1	239.0521	94239.55C	1.3194E-04
pu240	6.59E+02	0.127%	1	240.0539	94240.50C	3.3048E-05
pu241	2.58E-02	0.000%	1	241.0567	94241.50C	1.2884E-09
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	3.16E+02	0.061%	1	241.0567	95241.50C	1.5781E-05
am242m	1.62E-01	0.000%	1	242.0595	95242.50C	8.0567E-09
am243	9.90E+00	0.002%	1	243.0614	95243.50C	4.9033E-07
total	517690.77	100.00%			Total	7.005861E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.03756

Time Effects Curve

BURNUP: PWR 20 GwD/MT PWR B&W 15x15, 3.00% , Burnup 20 GwD/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 300 YEARS
 DECAY TIME: 300 YEARS Volume 51575.24 pwr 3.0% 20 GwD/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
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O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	6.15E-01	0.000%	1	150.9199	62151.50C	4.9056E-08
eu151	5.60E+00	0.001%	1	150.9198	63151.55C	4.4669E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.04E-02	0.000%	1	233.0395	92233.50C	1.0538E-09
u234	1.08E+02	0.021%	1	234.0409	92234.50C	5.5552E-06
u235	6.32E+03	1.221%	1	235.0439	92235.50C	3.2369E-04
u236	1.43E+03	0.276%	1	236.0456	92236.50C	7.2930E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	2.78E+02	0.054%	1	237.0481	93237.55C	1.4118E-05
pu238	2.92E+00	0.001%	1	238.0495	94238.50C	1.4767E-07
pu239	2.61E+03	0.504%	1	239.0521	94239.55C	1.3144E-04
pu240	6.52E+02	0.126%	1	240.0539	94240.50C	3.2697E-05
pu241	2.80E-04	0.000%	1	241.0567	94241.50C	1.3983E-11
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	2.69E+02	0.052%	1	241.0567	95241.50C	1.3434E-05
am242m	9.88E-02	0.000%	1	242.0595	95242.50C	4.9136E-09
am243	9.80E+00	0.002%	1	243.0614	95243.50C	4.8537E-07
total	517683.144	100.00%			Total	7.005827E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.03744

Time Effects Curve

BURNUP: PWR 20 GWd/MT		PWR B&W 15x15, 3.00%, Burnup 20 GWd/MTHM				
ENRICHMENT: 3.00%		DECAY TIME: 400 YEARS				
DECAY TIME: 400 YEARS		Volume	51575.24 pwr 3.0% 20 GWd/MT			
ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.85E-01	0.000%	1	150.9199	62151.50C	2.2733E-08
eu151	5.93E+00	0.001%	1	150.9198	63151.55C	4.7301E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.99E-02	0.000%	1	233.0395	92233.50C	1.5446E-09
u234	1.09E+02	0.021%	1	234.0409	92234.50C	5.6066E-06
u235	6.33E+03	1.223%	1	235.0439	92235.50C	3.2421E-04
u236	1.44E+03	0.278%	1	236.0456	92236.50C	7.3440E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	3.17E+02	0.061%	1	237.0481	93237.55C	1.6099E-05

pu238	1.35E+00	0.000%	1	238.0495	94238.50C	6.8270E-08
pu239	2.60E+03	0.502%	1	239.0521	94239.55C	1.3093E-04
pu240	6.46E+02	0.125%	1	240.0539	94240.50C	3.2396E-05
pu241	7.54E-05	0.000%	1	241.0567	94241.50C	3.7655E-12
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	2.30E+02	0.044%	1	241.0567	95241.50C	1.1486E-05
am242m	6.05E-02	0.000%	1	242.0595	95242.50C	3.0088E-09
am243	9.71E+00	0.002%	1	243.0614	95243.50C	4.8092E-07
total	517686.455	100.00%			Total	7.005849E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.0375

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECA TIME: 500 YEARS
 DECA TIME: 500 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1 98.90628	43099.50C	2.7994E-05
ru 101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh 103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag 109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd 143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd 145	2.03E+02	0.039%	1 144.9125	60145.50C	1.8664E-05
sm 147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm 149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm 150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm 151	1.32E-01	0.000%	1 150.9199	62151.50C	1.0529E-08
eu 151	6.08E+00	0.001%	1 150.9198	63151.55C	4.8498E-07
sm 152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06
eu 153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06
gd 155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07
u 233	4.06E-02	0.000%	1 233.0395	92233.50C	2.0973E-09
u 234	1.10E+02	0.021%	1 234.0409	92234.50C	5.6580E-06
u 235	6.34E+03	1.225%	1 235.0439	92235.50C	3.2472E-04
u 236	1.45E+03	0.280%	1 236.0456	92236.50C	7.3950E-05
u 238	4.42E+05	85.379%	1 238.0508	92238.50C	2.2352E-02
np 237	3.51E+02	0.068%	1 237.0481	93237.55C	1.7825E-05
pu 238	6.24E-01	0.000%	1 238.0495	94238.50C	3.1556E-08
pu 239	2.59E+03	0.500%	1 239.0521	94239.55C	1.3043E-04
pu 240	6.39E+02	0.123%	1 240.0539	94240.50C	3.2045E-05
pu 241	7.32E-05	0.000%	1 241.0567	94241.50C	3.6556E-12
pu 242	7.08E+01	0.014%	1 242.0587	94242.50C	3.5211E-06
am 241	1.96E+02	0.038%	1 241.0567	95241.50C	9.7882E-06
am 242m	3.70E-02	0.000%	1 242.0595	95242.50C	1.8401E-09
am 243	9.62E+00	0.002%	1 243.0614	95243.50C	4.7646E-07
total	517689.624	100.00%		Total	7.005870E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03756

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECA TIME: 1000 YEARS
 DECA TIME: 1000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1 98.90628	43099.50C	2.7994E-05

ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.80E-03	0.000%	1	150.9199	62151.50C	2.2335E-10
eu151	6.21E+00	0.001%	1	150.9198	63151.55C	4.9535E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.06E-01	0.000%	1	233.0395	92233.50C	5.4757E-09
u234	1.11E+02	0.021%	1	234.0409	92234.50C	5.7095E-06
u235	6.37E+03	1.230%	1	235.0439	92235.50C	3.2625E-04
u236	1.48E+03	0.286%	1	236.0456	92236.50C	7.5480E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	4.57E+02	0.088%	1	237.0481	93237.55C	2.3208E-05
pu238	1.53E-02	0.000%	1	238.0495	94238.50C	7.7373E-10
pu239	2.58E+03	0.495%	1	239.0521	94239.55C	1.2892E-04
pu240	6.06E+02	0.117%	1	240.0539	94240.50C	3.0390E-05
pu241	7.03E-05	0.000%	1	241.0567	94241.50C	3.5108E-12
pu242	7.07E+01	0.014%	1	242.0587	94242.50C	3.5161E-06
am241	8.77E+01	0.017%	1	241.0567	95241.50C	4.3797E-06
am242m	3.17E-03	0.000%	1	242.0595	95242.50C	1.5765E-10
am243	9.18E+00	0.002%	1	243.0614	95243.50C	4.5467E-07
total	517684.207	100.00%			Total	7.005857E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.03746

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 4000 YEARS
 DECAY TIME: 4000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.28E+02	0.044%	1	98.90628	43099.50C	2.7751E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.58E-13	0.000%	1	150.9199	62151.50C	2.0580E-20
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	6.03E-01	0.000%	1	233.0395	92233.50C	3.1150E-08
u234	1.10E+02	0.021%	1	234.0409	92234.50C	5.6580E-06
u235	6.58E+03	1.271%	1	235.0439	92235.50C	3.3701E-04
u236	1.64E+03	0.317%	1	236.0456	92236.50C	8.3640E-05
u238	4.42E+05	85.382%	1	238.0508	92238.50C	2.2352E-02
np237	5.42E+02	0.105%	1	237.0481	93237.55C	2.7525E-05
pu238	1.87E-09	0.000%	1	238.0495	94238.50C	8.4453E-17
pu239	2.35E+03	0.454%	1	239.0521	94239.55C	1.1834E-04
pu240	4.41E+02	0.085%	1	240.0539	94240.50C	2.2115E-05

pu241	5.50E-05	0.000%	1	241.0567	94241.50C	2.7467E-12
pu242	7.03E+01	0.014%	1	242.0587	94242.50C	3.4962E-06
am241	7.18E-01	0.000%	1	241.0567	95241.50C	3.5857E-08
am242m	1.25E-09	0.000%	1	242.0595	95242.50C	6.2166E-17
am243	6.92E+00	0.001%	1	243.0614	95243.50C	3.4273E-07
total	517672.051	100.00%			Total	7.005821E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03722

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECA Y TIME: 8000 YEARS
 DECA Y TIME: 8000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.25E+02	0.043%	1 98.90628	43099.50C	2.7386E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm151	1.07E-26	0.000%	1 150.9199	62151.50C	8.5350E-34
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9615E-07
am152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07
u233	1.28E+00	0.000%	1 233.0395	92233.50C	6.6122E-08
u234	1.09E+02	0.021%	1 234.0409	92234.50C	5.6066E-06
u235	6.83E+03	1.319%	1 235.0439	92235.50C	3.4981E-04
u236	1.79E+03	0.346%	1 236.0456	92236.50C	9.1290E-05
u238	4.42E+05	85.384%	1 238.0508	92238.50C	2.2352E-02
np237	5.42E+02	0.105%	1 237.0481	93237.55C	2.7525E-05
pu238	4.83E-18	0.000%	1 238.0495	94238.50C	2.4426E-25
pu239	2.10E+03	0.406%	1 239.0521	94239.55C	1.0575E-04
pu240	2.89E+02	0.056%	1 240.0539	94240.50C	1.4493E-05
pu241	3.97E-05	0.000%	1 241.0567	94241.50C	1.9826E-12
pu242	6.98E+01	0.013%	1 242.0587	94242.50C	3.4714E-06
am241	2.43E-03	0.000%	1 241.0567	95241.50C	1.2135E-10
am242m	3.60E-18	0.000%	1 242.0595	95242.50C	1.7904E-25
am243	4.75E+00	0.001%	1 243.0614	95243.50C	2.3526E-07
total	517663.342	100.00%		Total	7.005790E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03705

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECA Y TIME: 10000 YEARS
 DECA Y TIME: 10000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.23E+02	0.043%	1 98.90628	43099.50C	2.7142E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06

nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.19E-33	0.000%	1	150.9199	62151.50C	1.7469E-40
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.61E+00	0.000%	1	233.0395	92233.50C	8.3169E-08
u234	1.08E+02	0.021%	1	234.0409	92234.50C	5.5552E-06
u235	6.95E+03	1.343%	1	235.0439	92235.50C	3.5596E-04
u236	1.84E+03	0.355%	1	236.0456	92236.50C	9.3840E-05
u238	4.42E+05	85.385%	1	238.0508	92238.50C	2.2352E-02
np237	5.41E+02	0.105%	1	237.0481	93237.55C	2.7474E-05
pu238	2.60E-22	0.000%	1	238.0495	94238.50C	1.3148E-29
pu239	1.98E+03	0.382%	1	239.0521	94239.55C	9.9710E-05
pu240	2.34E+02	0.045%	1	240.0539	94240.50C	1.1735E-05
pu241	3.37E-05	0.000%	1	241.0567	94241.50C	1.6830E-12
pu242	6.96E+01	0.013%	1	242.0587	94242.50C	3.4614E-06
am241	1.11E-03	0.000%	1	241.0567	95241.50C	5.5433E-11
am242m	1.93E-22	0.000%	1	242.0595	95242.50C	9.5984E-30
am243	3.94E+00	0.001%	1	243.0614	95243.50C	1.9514E-07
total	517653.661	100.00%			Total	7.005741E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03686

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 14000 YEARS
 DECADE TIME: 14000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.20E+02	0.042%	1	98.90628	43099.50C	2.6777E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.26E+00	0.000%	1	233.0395	92233.50C	1.1675E-07
u234	1.07E+02	0.021%	1	234.0409	92234.50C	5.5037E-06
u235	7.16E+03	1.383%	1	235.0439	92235.50C	3.6672E-04
u236	1.92E+03	0.371%	1	236.0456	92236.50C	9.7920E-05
u238	4.42E+05	85.386%	1	238.0508	92238.50C	2.2352E-02
np237	5.41E+02	0.105%	1	237.0481	93237.55C	2.7474E-05
pu238	7.49E-31	0.000%	1	238.0495	94238.50C	3.7877E-38
pu239	1.77E+03	0.342%	1	239.0521	94239.55C	8.9135E-05
pu240	1.53E+02	0.030%	1	240.0539	94240.50C	7.6727E-06
pu241	2.43E-05	0.000%	1	241.0567	94241.50C	1.2135E-12
pu242	6.91E+01	0.013%	1	242.0587	94242.50C	3.4365E-06
am241	7.66E-04	0.000%	1	241.0567	95241.50C	3.8254E-11

am242m	5.57E-31	0.000%	1	242.0595	95242.50C	2.7701E-38
am243	2.70E+00	0.001%	1	243.0614	95243.50C	1.3373E-07
total	517647.571	100.00%			Total	7.005714E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03675

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 18000 YEARS
 DECADE TIME: 18000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.17E+02	0.042%	1	98.90628	43099.50C	2.6412E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.91E+00	0.001%	1	233.0395	92233.50C	1.5032E-07
u234	1.07E+02	0.021%	1	234.0409	92234.50C	5.5037E-06
u235	7.35E+03	1.420%	1	235.0439	92235.50C	3.7645E-04
u236	1.98E+03	0.383%	1	236.0456	92236.50C	1.0098E-04
u238	4.42E+05	85.387%	1	238.0508	92238.50C	2.2352E-02
np237	5.40E+02	0.104%	1	237.0481	93237.55C	2.7423E-05
pu238	2.16E-39	0.000%	1	238.0495	94238.50C	1.0923E-46
pu239	1.57E+03	0.303%	1	239.0521	94239.55C	7.9063E-05
pu240	1.01E+02	0.020%	1	240.0539	94240.50C	5.0650E-06
pu241	1.76E-05	0.000%	1	241.0567	94241.50C	8.7894E-13
pu242	6.85E+01	0.013%	1	242.0587	94242.50C	3.4067E-06
am241	5.52E-04	0.000%	1	241.0567	95241.50C	2.7567E-11
am242m	1.81E-39	0.000%	1	242.0595	95242.50C	8.0070E-47
am243	1.86E+00	0.000%	1	243.0614	95243.50C	9.2122E-08
total	517640.781	100.00%			Total	7.005680E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03661

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 22000 YEARS
 DECADE TIME: 22000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.14E+02	0.041%	1	98.90628	43099.50C	2.6047E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06

sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	3.54E+00	0.001%	1	233.0395	92233.50C	1.8287E-07
u234	1.06E+02	0.020%	1	234.0409	92234.50C	5.4523E-06
u235	7.52E+03	1.453%	1	235.0439	92235.50C	3.8515E-04
u236	2.01E+03	0.388%	1	236.0456	92236.50C	1.0251E-04
u238	4.42E+05	85.389%	1	238.0508	92238.50C	2.2352E-02
np237	5.39E+02	0.104%	1	237.0481	93237.55C	2.7373E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.40E+03	0.270%	1	239.0521	94239.55C	7.0502E-05
pu240	6.59E+01	0.013%	1	240.0539	94240.50C	3.3048E-06
pu241	1.27E-05	0.000%	1	241.0567	94241.50C	6.3423E-13
pu242	6.80E+01	0.013%	1	242.0587	94242.50C	3.3818E-06
am241	3.99E-04	0.000%	1	241.0567	95241.50C	1.9926E-11
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.27E+00	0.000%	1	243.0614	95243.50C	6.2900E-08
total	517630.22	100.00%			Total	7.005623E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03641

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 26000 YEARS
 DECADE TIME: 26000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	2.8413E-05
tc 99	2.12E+02	0.041%	1	98.90628	2.5803E-05
ru101	2.18E+02	0.042%	1	100.9056	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	1.6864E-05
sm147	8.97E+01	0.017%	1	148.9149	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	2.4710E-07
u233	4.16E+00	0.001%	1	233.0395	2.1490E-07
u234	1.05E+02	0.020%	1	234.0409	5.4009E-06
u235	7.67E+03	1.482%	1	235.0439	3.9284E-04
u236	2.03E+03	0.392%	1	236.0456	1.0353E-04
u238	4.42E+05	85.390%	1	238.0508	2.2352E-02
np237	5.39E+02	0.104%	1	237.0481	2.7373E-05
pu238	0.00E+00	0.000%	1	238.0495	0.0000E+00
pu239	1.25E+03	0.241%	1	239.0521	6.2948E-05
pu240	4.32E+01	0.008%	1	240.0539	2.1664E-06
pu241	9.14E-06	0.000%	1	241.0567	4.5645E-13
pu242	6.75E+01	0.013%	1	242.0587	3.3570E-06
am241	2.88E-04	0.000%	1	241.0567	1.4383E-11
am242m	0.00E+00	0.000%	1	242.0595	0.0000E+00
am243	8.74E-01	0.000%	1	243.0614	4.3287E-08
total	517624.244	100.00%		Total	7.005593E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03629

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 30000 YEARS
 DECADE TIME: 30000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.09E+02	0.040%	1 98.90628	43099.50C	2.5438E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9815E-07
sm152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07
u233	4.77E+00	0.001%	1 233.0395	92233.50C	2.4641E-07
u234	1.04E+02	0.020%	1 234.0409	92234.50C	5.3494E-06
u235	7.80E+03	1.507%	1 235.0439	92235.50C	3.9949E-04
u236	2.05E+03	0.396%	1 238.0456	92236.50C	1.0455E-04
u238	4.42E+05	85.390%	1 238.0508	92238.50C	2.2352E-02
np237	5.38E+02	0.104%	1 237.0481	93237.55C	2.7322E-05
pu238	0.00E+00	0.000%	1 238.0495	94238.50C	0.0000E+00
pu239	1.12E+03	0.216%	1 239.0521	94239.55C	5.6401E-05
pu240	2.83E+01	0.005%	1 240.0539	94240.50C	1.4192E-06
pu241	6.60E-06	0.000%	1 241.0567	94241.50C	3.2960E-13
pu242	6.70E+01	0.013%	1 242.0587	94242.50C	3.3321E-06
am241	2.08E-04	0.000%	1 241.0567	95241.50C	1.0387E-11
am242m	0.00E+00	0.000%	1 242.0595	95242.50C	0.0000E+00
am243	6.00E-01	0.000%	1 243.0614	95243.50C	2.9717E-08
total	517624.18	100.00%		Total	7.005584E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03629

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 36000 YEARS
 DECADE TIME: 36000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	2.05E+02	0.040%	1 98.90628	43099.50C	2.4951E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00

eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	5.66E+00	0.001%	1	233.0395	92233.50C	2.9238E-07
u234	1.02E+02	0.020%	1	234.0409	92234.50C	5.2465E-06
u235	7.97E+03	1.540%	1	235.0439	92235.50C	4.0820E-04
u236	2.06E+03	0.398%	1	236.0456	92236.50C	1.0506E-04
u238	4.42E+05	85.394%	1	238.0508	92238.50C	2.2352E-02
np237	5.37E+02	0.104%	1	237.0481	93237.55C	2.7271E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	9.39E+02	0.181%	1	239.0521	94239.55C	4.7287E-05
pu240	1.50E+01	0.003%	1	240.0539	94240.50C	7.5223E-07
pu241	4.04E-06	0.000%	1	241.0567	94241.50C	2.0176E-13
pu242	6.63E+01	0.013%	1	242.0587	94242.50C	3.2973E-06
am241	1.26E-04	0.000%	1	241.0567	95241.50C	6.3923E-12
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	3.41E-01	0.000%	1	243.0614	95243.50C	1.6889E-08
total	517602.811	100.00%			Total	7.005463E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03588

Time Effects Curve
 BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECADE TIME: 45000 YEARS
 DECADE TIME: 45000 YEARS

ISOTOPE	GRAMS/Ass	%	Volume	Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.99E+02	0.038%	1	98.90628	43099.50C	2.4221E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	6.95E+00	0.001%	1	233.0395	92233.50C	3.5902E-07
u234	1.00E+02	0.019%	1	234.0409	92234.50C	5.1437E-06
u235	8.18E+03	1.580%	1	235.0439	92235.50C	4.1896E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.396%	1	238.0508	92238.50C	2.2352E-02
np237	5.35E+02	0.103%	1	237.0481	93237.55C	2.7170E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	7.25E+02	0.140%	1	239.0521	94239.55C	3.6510E-05
pu240	5.81E+00	0.001%	1	240.0539	94240.50C	2.9136E-07
pu241	1.94E-06	0.000%	1	241.0567	94241.50C	9.6883E-14
pu242	6.52E+01	0.013%	1	242.0587	94242.50C	3.2426E-06
am241	5.86E-05	0.000%	1	241.0567	95241.50C	2.9265E-12
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.46E-01	0.000%	1	243.0614	95243.50C	7.2311E-09
total	517589.616	100.00%			Total	7.005373E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03562

Time Effects Curve

BURNUP: PWR 20 GwD/MT PWR B&W 15x15, 3.00% , Burnup 20 GwD/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 60000 YEARS
 DECAY TIME: 60000 YEARS Volume 51575.24 pwr 3.0% 20 GwD/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.052%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	1.89E+02	0.037%	1 98.90628	43099.50C	2.3004E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07
u233	8.98E+00	0.002%	1 233.0395	92233.50C	4.6389E-07
u234	9.73E+01	0.019%	1 234.0409	92234.50C	5.0048E-06
u235	8.43E+03	1.629%	1 235.0439	92235.50C	4.3176E-04
u236	2.07E+03	0.400%	1 236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.400%	1 238.0508	92238.50C	2.2352E-02
np237	5.33E+02	0.103%	1 237.0481	93237.55C	2.7068E-05
pu238	0.00E+00	0.000%	1 238.0495	94238.50C	0.0000E+00
pu239	4.71E+02	0.091%	1 239.0521	94239.55C	2.3719E-05
pu240	1.19E+00	0.000%	1 240.0539	94240.50C	5.9677E-08
pu241	5.71E-07	0.000%	1 241.0567	94241.50C	2.8516E-14
pu242	6.34E+01	0.012%	1 242.0587	94242.50C	3.1531E-06
am241	1.72E-05	0.000%	1 241.0567	95241.50C	8.5896E-13
am242m	0.00E+00	0.000%	1 242.0595	95242.50C	0.0000E+00
am243	3.57E-02	0.000%	1 243.0614	95243.50C	1.7681E-09
total	517566.416	100.00%		Total	7.005206E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 = 62377.29
 Effective density = 10.03517

Time Effects Curve

BURNUP: PWR 20 GwD/MT PWR B&W 15x15, 3.00% , Burnup 20 GwD/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 100000 YEARS
 DECAY TIME: 100000 YEARS Volume 51575.24 pwr 3.0% 20 GwD/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.053%	1 15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05
tc 99	1.66E+02	0.032%	1 98.90628	43099.50C	2.0205E-05
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06

gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.37E+01	0.003%	1	233.0395	92233.50C	7.0771E-07
u234	8.94E+01	0.017%	1	234.0409	92234.50C	4.5984E-06
u235	8.75E+03	1.691%	1	235.0439	92235.50C	4.4815E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.406%	1	238.0508	92238.50C	2.2352E-02
np237	5.26E+02	0.102%	1	237.0481	93237.55C	2.6713E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.49E+02	0.029%	1	239.0521	94239.55C	7.5034E-06
pu240	1.74E-02	0.000%	1	240.0539	94240.50C	8.7258E-10
pu241	2.19E-08	0.000%	1	241.0567	94241.50C	1.0937E-15
pu242	5.89E+01	0.011%	1	242.0587	94242.50C	2.9293E-06
am241	6.59E-07	0.000%	1	241.0567	95241.50C	3.2910E-14
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	8.30E-04	0.000%	1	243.0614	95243.50C	4.1108E-11
total	517525.528	100.00%			Total	7.004864E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29
Effective density = 10.03438

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 250000 YEARS
DECAY TIME: 250000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.056%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.01E+02	0.020%	1	98.90628	43099.50C	1.2293E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.51E+01	0.005%	1	233.0395	92233.50C	1.2966E-06
u234	6.68E+01	0.013%	1	234.0409	92234.50C	3.4360E-06
u235	8.89E+03	1.718%	1	235.0439	92235.50C	4.5532E-04
u236	2.06E+03	0.398%	1	236.0456	92236.50C	1.0506E-04
u238	4.42E+05	85.428%	1	238.0508	92238.50C	2.2352E-02
np237	5.01E+02	0.097%	1	237.0481	93237.55C	2.5443E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	2.00E+00	0.000%	1	239.0521	94239.55C	1.0072E-07
pu240	2.34E-09	0.000%	1	240.0539	94240.50C	1.1735E-16
pu241	1.06E-13	0.000%	1	241.0567	94241.50C	5.2936E-21
pu242	4.46E+01	0.009%	1	242.0587	94242.50C	2.2181E-06
am241	3.20E-12	0.000%	1	241.0567	95241.50C	1.5981E-19
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.52E-08	0.000%	1	243.0614	95243.50C	7.5282E-16
total	517393.01	100.00%			Total	7.003743E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29
Effective density = 10.03181

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM

ENRICHMENT: 3.00%			DECAY TIME: 500000 YEARS			
DECAY TIME: 500000 YEARS			Volume	51575.24	pwr 3.0%	20 GWd/MT
ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.059%	1 15.99492	8016.50C	4.6947E-02	
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05	
tc 99	4.46E+01	0.009%	1 98.90628	43099.50C	5.4285E-06	
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05	
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05	
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06	
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05	
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05	
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06	
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07	
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06	
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00	
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9615E-07	
sm152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06	
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06	
gd155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07	
u233	3.16E+01	0.006%	1 233.0395	92233.50C	1.6324E-06	
u234	4.51E+01	0.009%	1 234.0409	92234.50C	2.3198E-06	
u235	8.89E+03	1.719%	1 235.0439	92235.50C	4.5532E-04	
u236	2.05E+03	0.396%	1 236.0456	92236.50C	1.0455E-04	
u238	4.42E+05	85.451%	1 238.0508	92238.50C	2.2352E-02	
np237	4.62E+02	0.089%	1 237.0481	93237.55C	2.3462E-05	
pu238	0.00E+00	0.000%	1 238.0495	94238.50C	0.0000E+00	
pu239	1.51E-03	0.000%	1 239.0521	94239.55C	7.6041E-11	
pu240	7.61E-11	0.000%	1 240.0539	94240.50C	3.8163E-18	
pu241	1.48E-22	0.000%	1 241.0567	94241.50C	7.3911E-30	
pu242	2.80E+01	0.005%	1 242.0587	94242.50C	1.3925E-06	
am241	4.70E-21	0.000%	1 241.0567	95241.50C	2.3472E-28	
am242m	0.00E+00	0.000%	1 242.0595	95242.50C	0.0000E+00	
am243	1.44E-08	0.000%	1 243.0614	95243.50C	7.1320E-16	
total	517253.812	100.00%		Total	7.002636E-02	

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.02911

Time Effects Curve

BURNUP: PWR 20 GWd/MT			PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM			
ENRICHMENT: 3.00%			DECAY TIME: 999999 YEARS			
DECAY TIME: 999999 YEARS			Volume	51575.24	pwr 3.0%	20 GWd/MT
ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density	
O 16	62377.29	12.063%	1 15.99492	8016.50C	4.6947E-02	
mo 95	2.24E+02	0.043%	1 94.90584	42095.50C	2.8413E-05	
tc 99	8.64E+00	0.002%	1 98.90628	43099.50C	1.0516E-06	
ru101	2.18E+02	0.042%	1 100.9056	44101.50C	2.6008E-05	
rh103	1.44E+02	0.028%	1 102.9055	45103.50C	1.6846E-05	
ag109	2.19E+01	0.004%	1 108.9048	47109.50C	2.4208E-06	
nd143	2.69E+02	0.052%	1 142.9098	60143.50C	2.2660E-05	
nd145	2.03E+02	0.039%	1 144.9125	60145.50C	1.6864E-05	
sm147	8.97E+01	0.017%	1 146.9149	62147.50C	7.3501E-06	
sm149	1.42E+00	0.000%	1 148.9172	62149.50C	1.1479E-07	
sm150	8.04E+01	0.016%	1 149.9173	62150.50C	6.4561E-06	
sm151	0.00E+00	0.000%	1 150.9199	62151.50C	0.0000E+00	
eu151	6.22E+00	0.001%	1 150.9198	63151.55C	4.9615E-07	
sm152	3.74E+01	0.007%	1 151.9198	62152.50C	2.9636E-06	
eu153	2.70E+01	0.005%	1 152.9212	63153.55C	2.1255E-06	
gd155	3.18E+00	0.001%	1 154.9227	64155.50C	2.4710E-07	
u233	3.05E+01	0.006%	1 233.0395	92233.50C	1.5756E-06	
u234	2.91E+01	0.006%	1 234.0409	92234.50C	1.4968E-06	

u235	8.89E+03	1.719%	1	235.0439	92235.50C	4.5532E-04
u236	2.01E+03	0.389%	1	236.0456	92236.50C	1.0251E-04
u238	4.42E+05	85.481%	1	238.0508	92238.50C	2.2352E-02
np237	3.93E+02	0.076%	1	237.0481	93237.55C	1.9958E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	4.61E-08	0.000%	1	239.0521	94239.55C	2.3215E-15
pu240	1.03E-10	0.000%	1	240.0539	94240.50C	5.1653E-18
pu241	0.00E+00	0.000%	1	241.0567	94241.50C	0.0000E+00
pu242	1.11E+01	0.002%	1	242.0587	94242.50C	5.5204E-07
am241	9.14E-39	0.000%	1	241.0567	95241.50C	4.5645E-46
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.41E-08	0.000%	1	243.0614	95243.50C	6.9834E-16
total	517074.85	100.00%			Total	7.001472E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.02564

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 ENRICHMENT: 3.00% DECAY TIME: 70000 YEARS
 DECADE TIME: 70000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%	Aw	MCNP ID	Number Density
O 16	62377.29	12.052%	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	94.90584	42095.50C	2.8413E-05
tc 99	1.83E+02	0.035%	98.90628	43099.50C	2.2274E-05
ru101	2.18E+02	0.042%	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	154.9227	64155.50C	2.4710E-07
u233	1.03E+01	0.002%	233.0395	92233.50C	5.3208E-07
u234	9.52E+01	0.018%	234.0409	92234.50C	4.8968E-06
u235	8.55E+03	1.652%	235.0439	92235.50C	4.3791E-04
u236	2.07E+03	0.400%	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.401%	238.0508	92238.50C	2.2352E-02
np237	5.31E+02	0.103%	237.0481	93237.55C	2.6966E-05
pu238	0.00E+00	0.000%	238.0495	94238.50C	0.0000E+00
pu239	3.54E+02	0.068%	239.0521	94239.55C	1.7827E-05
pu240	4.14E-01	0.000%	240.0539	94240.50C	2.0761E-08
pu241	2.53E-07	0.000%	241.0567	94241.50C	1.2635E-14
pu242	6.22E+01	0.012%	242.0587	94242.50C	3.0934E-06
am241	7.62E-06	0.000%	241.0567	95241.50C	3.8054E-13
am242m	0.00E+00	0.000%	242.0595	95242.50C	0.0000E+00
am243	1.39E-02	0.000%	243.0614	95243.50C	8.8844E-10
total	517558.638	100.00%		Total	7.005135E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2

= 62377.29

Effective density = 10.03502

Time Effects Curve
 BURNUP: PWR 20 GWd/MT
 ENRICHMENT: 3.00%
 DECAY TIME: 1 YEARS

PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 DECAY TIME: 1 YEARS
 Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/As	%	Aw	MCNP ID	Density
O 16	62377.29	12.050%	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	98.90628	43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	144.9125	60145.50C	1.6864E-05
sm147	4.40E+01	0.009%	146.9149	62147.50C	3.6054E-06
sm149	1.42E+00	0.000%	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	149.9173	62150.50C	6.4561E-06
sm151	6.15E+00	0.001%	150.9199	62151.50C	4.9056E-07
eu151	6.30E+02	0.000%	150.9198	63151.55C	5.0253E-09
sm152	3.74E+01	0.007%	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	152.9212	63153.55C	2.1255E-06
gd155	4.83E-01	0.000%	154.9227	64155.50C	3.7532E-08
u233	1.02E-03	0.000%	233.0395	92233.50C	5.2691E-11
u234	8.08E+01	0.016%	234.0409	92234.50C	4.1561E-06
u235	6.30E+03	1.217%	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.388%	238.0508	92238.50C	2.2352E-02
np237	1.28E+02	0.025%	237.0481	93237.55C	6.5004E-06
pu238	2.96E+01	0.006%	238.0495	94238.50C	1.4969E-06
pu239	2.63E+03	0.508%	239.0521	94239.55C	1.3244E-04
pu240	6.72E+02	0.130%	240.0539	94240.50C	3.3700E-05
pu241	3.86E+02	0.075%	241.0567	94241.50C	1.9277E-05
pu242	7.08E+01	0.014%	242.0587	94242.50C	3.5211E-06
am241	3.61E+01	0.007%	241.0567	95241.50C	1.8028E-06
am242m	4.30E-01	0.000%	242.0595	95242.50C	2.1385E-08
am243	1.01E+01	0.002%	243.0614	95243.50C	5.0023E-07
total	517638.94	100.00%	Total	7.005442E-02	

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 62377.29
 Effective density = 10.03658

Best Estimate fbc
 BURNUP: PWR 20 GWd/MT
 ENRICHMENT: 3.00%
 DECAY TIME: 5 YEARS

Best Estimate fbc
 PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 DECAY TIME: 5 YEARS
 Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/	% best f	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	0.641 94.90584	42095.50C	1.8213E-05
tc 99	2.31E+02	0.045%	0.641 98.90628	43099.50C	1.8022E-05
ru101	2.18E+02	0.042%	0.641 100.9056	44101.50C	1.6671E-05
rh103	1.44E+02	0.028%	0.641 102.9055	45103.50C	1.0798E-05
ag109	2.19E+01	0.004%	0.641 108.9048	47109.50C	1.5517E-06
nd143	2.69E+02	0.052%	0.97314 142.9098	60143.50C	2.2051E-05
nd145	2.03E+02	0.039%	0.99166 144.9125	60145.50C	1.6723E-05
sm147	7.38E+01	0.014%	0.931 146.9149	62147.50C	5.6300E-06
sm149	1.42E+00	0.000%	0.58 148.9172	62149.50C	6.6579E-08
sm150	8.04E+01	0.016%	0.885 149.9173	62150.50C	5.7136E-06
sm151	5.97E+00	0.001%	0.689 150.9199	62151.50C	3.2810E-07
eu151	2.50E-01	0.000%	0.689 150.9198	63151.55C	1.3740E-08
sm152	3.74E+01	0.007%	0.817 151.9198	62152.50C	2.4213E-06
eu153	2.70E+01	0.005%	0.91258 152.9212	63153.55C	1.9397E-06
gd155	1.69E+00	0.000%	0.3475 154.9227	64155.50C	4.5634E-08
u233	1.20E-03	0.000%	1.515 233.0395	92233.50C	9.3914E-11
u234	8.17E+01	0.016%	0.634 234.0409	92234.50C	2.6643E-06
u235	6.30E+03	1.217%	1.108 235.0439	92235.50C	3.5752E-04
u236	1.41E+03	0.272%	0.959 236.0456	92236.50C	6.8962E-05
u238	4.42E+05	85.383%	0.993 238.0508	92238.50C	2.2196E-02
np237	1.29E+02	0.025%	0.66 237.0481	93237.55C	4.3238E-06
pu238	2.93E+01	0.006%	0.843 238.0495	94238.50C	1.2491E-06
pu239	2.63E+03	0.508%	1.026 239.0521	94239.55C	1.3589E-04
pu240	6.72E+02	0.130%	1 240.0539	94240.50C	3.3700E-05
pu241	3.18E+02	0.061%	1.012 241.0567	94241.50C	1.6071E-05
pu242	7.08E+01	0.014%	1 242.0587	94242.50C	3.5211E-06
am241	1.03E+02	0.020%	0.71582 241.0567	95241.50C	3.6820E-06
am242m	4.21E-01	0.000%	1 242.0595	95242.50C	2.0938E-08
am243	1.01E+01	0.002%	1 243.0614	95243.50C	5.0023E-07
total	517670.4	100.00%	Total	6.989112E-02	

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 62377.29
 Effective density = 10.03719

Vienna Actinide Only Burnup Credit fbc
 BURNUP: PWR 20 GWd/MT
 ENRICHMENT: 3.00%
 DECAY TIME: 5 YEARS

Vienna Actinide Only Burnup Credit fbc
 PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
 DECAY TIME: 5 YEARS
 Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/	% best f	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1 15.99492	8016.50C	4.6947E-02
u234	8.17E+01	0.016%	0.509 234.0409	92234.50C	2.1390E-06
u235	6.30E+03	1.217%	1.115 235.0439	92235.50C	3.5978E-04
u236	1.41E+03	0.272%	0.955 236.0456	92236.50C	6.8674E-05
u238	4.42E+05	85.383%	0.99 238.0508	92238.50C	2.2129E-02
pu238	2.93E+01	0.006%	0.829 238.0495	94238.50C	1.2283E-06
pu239	2.63E+03	0.508%	1.033 239.0521	94239.55C	1.3681E-04
pu240	6.72E+02	0.130%	1 240.0539	94240.50C	3.3700E-05
pu241	3.18E+02	0.061%	1.016 241.0567	94241.50C	1.6135E-05
pu242	7.08E+01	0.014%	1 242.0587	94242.50C	3.5211E-06
am241	1.03E+02	0.020%	0.583 241.0567	95241.50C	2.9988E-06
total	515992.1	99.68%	Total	6.970076E-02	

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
 62377.29
 Effective density = 10.00465

```
=sas2h      parm='halt09,skipcellwt,skipshipdata'  
SAS2H: Babcock Wilcox 15x15, 3.00wt%, 20gwd/mtu burn High Temp  
27burnuplib latticecell  
'  
' mixtures of fuel-pin-unit-cell:  
' den=mass UO2/ Volume assembly = 526377.3 g/5.157524E4  
uo2 1 den=10.2060 1 975 92235 3.00 92234 0.0240 92236 0.0138 92238 96.9622 end  
kr-83      1 0 1-20 975 end  
kr-85      1 0 1-20 975 end  
sr-90      1 0 1-20 975 end  
y-89       1 0 1-20 975 end  
mo-95      1 0 1-20 975 end  
zr-93      1 0 1-20 975 end  
zr-94      1 0 1-20 975 end  
zr-95      1 0 1-20 975 end  
nb-94      1 0 1-20 975 end  
tc-99      1 0 1-20 975 end  
rh-103     1 0 1-20 975 end  
rh-105     1 0 1-20 975 end  
ru-101     1 0 1-20 975 end  
ru-106     1 0 1-20 975 end  
pd-105     1 0 1-20 975 end  
pd-108     1 0 1-20 975 end  
ag-109     1 0 1-20 975 end  
sb-124     1 0 1-20 975 end  
xe-131     1 0 1-20 975 end  
xe-132     1 0 1-20 975 end  
xe-135     1 0 1-20 975 end  
xe-136     1 0 1-20 975 end  
cs-134     1 0 1-20 975 end  
cs-135     1 0 1-20 975 end  
cs-137     1 0 1-20 975 end  
ba-136     1 0 1-20 975 end  
la-139     1 0 1-20 975 end  
pr-141     1 0 1-20 975 end  
pr-143     1 0 1-20 975 end  
ce-144     1 0 1-20 975 end  
nd-143     1 0 1-20 975 end  
nd-145     1 0 1-20 975 end  
pm-147     1 0 1-20 975 end  
pm-148     1 0 1-20 975 end  
nd-147     1 0 1-20 975 end  
sm-147     1 0 1-20 975 end  
sm-149     1 0 1-20 975 end  
sm-150     1 0 1-20 975 end  
sm-151     1 0 1-20 975 end  
sm-152     1 0 1-20 975 end  
gd-155     1 0 1-20 975 end  
eu-153     1 0 1-20 975 end  
eu-154     1 0 1-20 975 end  
eu-155     1 0 1-20 975 end  
zircalloy 2 1.0 650 end  
h2o        3 den=0.6272 1 607.6 end  
arbm-bormod 0.6272 1 1 0 0 5000 100 3 552.6e-6 607.6 end  
'  
' 1050 ppm boron  
'-----  
end comp  
'  
'-----  
'  
' fuel-pin-cell geometry:  
'  
squarepitch 1.44272 0.936244 1 3 1.0922 2 0.95758 0 end  
'  
'-----  
'  
'  
' assembly and cycle parameters:  
'
```

```
npin/assm=208 fuelngth=360.172 ncycles=9 nlib/cyc=1
printlevel=5 inplevel=2 numztotal=4 end
3 0.63246 2 0.67310 3 0.814 500 2.961
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=4.976-5 burn=1. down=0. bfrac=0. h2ofrac=1.594 temkcyc=373 end
end
end
```



```
=origens
0$$ a8 26 a11 71 e
1$$ 1 1t
   b&w 15x15, 3.0%/20 Decay
3$$ 21 0 1 e
' 3$$ 21 0 1 a33 -88
2t
35$$ 0 t
' 54$$ a8 1 e
' 56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e 5t
56$$ 0 7 a13 -1 a15 3 0 4 e 5t
Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
per B&W assembly, 0.409 mthm for grams
60** 0 1 90 365.25 730.5 1826.25 3652.5
' 61** f1-20
' 65$$ a4 1 2z 1 2z 1 5z 1 2z 1
' a25 1 2z 1 2z 1 5z 1 2z 1
' a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
' 56$$ 0 -6 a10 1 e t
56$$ 0 10 a10 7 a14 5 a17 4 e 57** 10 e 5t
60** 15 20 30 50 100 150 200 250 300 400
' 61** f1-20
' 65$$ a4 1 2z 1 2z 1 5z 1 2z 1
' a25 1 2z 1 2z 1 5z 1 2z 1
' a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 400 e 5t
60** 500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.5+4
' 61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 1.5+4 e 5t
60** 1.6+4 1.7+4 1.8+4 1.9+4 2.0+4 2.1+4 2.2+4 2.3+4 2.4+4 2.5+4
' 61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e 57** 2.5+4 e 5t
60** 3.5+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
' 61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 3 a10 10 a14 5 a17 4 e 57** 2.5+5 e 5t
60** 3+5 5+5 999999
' 61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
' 56$$ 0 -10 a10 1 e t
56$$ f0 t
end
```

Decay Only *** Summary of Activity output from S3020cfo1.out dated 3/12/96

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 4

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nuclide	radioactivity, curies									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.20E-15	1.20E-15	1.20E-15	1.21E-15	1.39E-15	1.85E-15	2.70E-15	7.71E-15	2.82E-14	
tl207	5.12E-07	5.12E-07	5.12E-07	5.13E-07	6.08E-07	9.53E-07	1.34E-06	2.50E-06	4.37E-06	
tl208	3.10E-04	3.10E-04	3.10E-04	3.17E-04	3.91E-04	6.77E-04	1.10E-03	2.28E-03	3.34E-03	
tl209	8.55E-10	8.55E-10	8.55E-10	8.68E-10	1.75E-10	1.66E-10	1.84E-10	2.44E-10	3.60E-10	
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pb209	4.13E-08	4.13E-08	4.13E-08	3.94E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
pb210	9.27E-10	9.27E-10	9.27E-10	9.25E-10	1.06E-09	1.40E-09	2.05E-09	5.84E-09	2.13E-08	
pb211	5.13E-07	5.13E-07	5.13E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06	
pb212	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03	
pb214	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bi210	9.11E-10	9.11E-10	9.11E-10	9.13E-10	1.04E-09	1.40E-09	2.05E-09	5.84E-09	2.13E-08	
bi211	5.13E-07	5.13E-07	5.13E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06	
bi212	8.62E-04	8.62E-04	8.62E-04	8.81E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03	
bi213	4.07E-08	4.07E-08	4.07E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
bi214	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
po210	5.83E-10	5.83E-10	5.83E-10	5.85E-10	7.25E-10	1.11E-09	1.67E-09	4.93E-09	2.13E-08	
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
po211	1.41E-09	1.41E-09	1.41E-09	1.42E-09	1.68E-09	2.63E-09	3.71E-09	6.89E-09	1.20E-08	
po212	5.52E-04	5.52E-04	5.52E-04	5.64E-04	6.97E-04	1.21E-03	1.96E-03	4.06E-03	5.95E-03	
po213	3.99E-08	3.99E-08	3.99E-08	4.06E-08	8.34E-09	7.72E-09	8.58E-09	1.14E-08	1.68E-08	
po214	2.82E-08	2.82E-08	2.82E-08	2.76E-08	1.42E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
po215	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06	
po216	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03	
po218	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
at217	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
m218	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00	
m219	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06	
m220	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03	
m221	1.19E-08	1.19E-08	1.19E-08	1.19E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
fr221	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
fr223	7.71E-09	7.71E-09	7.71E-09	7.73E-09	9.06E-09	1.32E-08	1.86E-08	3.45E-08	6.03E-08	
ra222	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00	
ra223	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06	
ra224	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03	
ra225	3.96E-08	3.96E-08	3.96E-08	3.81E-08	7.68E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
ra226	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07	
ra228	1.30E-12	1.30E-12	1.30E-12	1.30E-12	1.54E-12	2.46E-12	4.00E-12	1.05E-11	2.58E-11	
ac225	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
ac227	5.59E-07	5.59E-07	5.59E-07	5.60E-07	6.56E-07	9.54E-07	1.35E-06	2.50E-06	4.37E-06	
ac228	1.29E-12	1.29E-12	1.29E-12	1.30E-12	1.54E-12	2.46E-12	4.00E-12	1.05E-11	2.58E-11	
th226	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00	
th227	5.23E-07	5.23E-07	5.23E-07	5.24E-07	6.19E-07	9.42E-07	1.33E-06	2.47E-06	4.32E-06	
th228	8.61E-04	8.61E-04	8.61E-04	8.63E-04	1.09E-03	1.88E-03	3.06E-03	6.33E-03	9.29E-03	
th229	7.04E-09	7.04E-09	7.04E-09	7.04E-09	7.24E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08	
th230	1.29E-05	1.29E-05	1.29E-05	1.29E-05	1.40E-05	1.75E-05	2.21E-05	3.61E-05	5.96E-05	
th231	1.90E-01	1.90E-01	1.90E-01	1.06E-01	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	

cm242	8.61E+03	8.61E+03	8.61E+03	8.58E+03	5.89E+03	1.83E+03	3.89E+02	7.29E+00	3.55E+00
cm243	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.09E+00	3.04E+00	2.96E+00	2.76E+00	2.44E+00
cm244	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02	1.18E+02	1.14E+02	1.01E+02	8.38E+01
cm245	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03
cm246	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.20E-04
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09
cm249	1.00E-09	1.00E-09	1.00E-09	1.81E-11	5.68E-13	1.27E-17	8.51E-24	.00E+00	.00E+00
cm250	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16
cm251	2.24E-20	2.24E-20	2.24E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	2.56E-05	2.56E-05	2.56E-05	2.56E-05	2.11E-05	1.16E-05	5.26E-06	4.90E-07	9.39E-09
bk250	1.25E-07	1.25E-07	1.25E-07	7.14E-10	5.29E-12	2.65E-12	1.06E-12	6.73E-14	7.16E-16
bk251	4.36E-14	4.36E-14	4.36E-14	4.28E-14	8.79E-15	6.60E-17	1.00E-19	3.49E-28	.00E+00
cf249	1.18E-08	1.18E-08	1.18E-08	1.20E-08	2.32E-08	4.68E-08	6.25E-08	7.40E-08	7.45E-08
cf250	1.90E-07	1.90E-07	1.90E-07	1.90E-07	1.88E-07	1.80E-07	1.71E-07	1.46E-07	1.12E-07
cf251	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.34E-09
cf252	1.35E-07	1.35E-07	1.35E-07	1.35E-07	1.27E-07	1.04E-07	8.01E-08	3.68E-08	9.84E-09
cf253	6.06E-09	6.06E-09	6.06E-09	5.83E-09	1.83E-10	4.07E-15	2.74E-21	.00E+00	.00E+00
cf254	7.31E-13	7.31E-13	7.31E-13	7.23E-13	1.11E-14	1.70E-16	5.99E-22	4.79E-31	
cf255	1.57E-18	1.57E-18	1.57E-18	2.39E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	4.85E-09	4.85E-09	4.85E-09	4.89E-09	9.33E-10	1.66E-13	8.05E-19	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	6.63E-12	6.63E-12	6.63E-12	6.61E-12	5.29E-12	2.65E-12	1.06E-12	6.72E-14	6.81E-16
es255	4.35E-14	4.35E-14	4.35E-14	4.27E-14	8.79E-15	6.59E-17	1.00E-19	3.48E-28	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	3.49E+06	3.49E+06	3.49E+06	2.63E+06	4.83E+04	4.28E+04	3.95E+04	3.42E+04	2.73E+04

Part B B&W 15x15, 3.00wt%, 20gcl/mtu decay

fission products page 24

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	nuclide radioactivity, curies									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
h 3	1.31E+02	1.31E+02	1.31E+02	1.31E+02	1.29E+02	1.24E+02	1.17E+02	9.91E+01	7.48E+01	
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
bc 10	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	
c 14	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	
ni 66	3.70E-04	3.70E-04	3.70E-04	2.73E-04	4.58E-16	.00E+00	.00E+00	.00E+00	.00E+00	
cu 66	3.70E-04	3.70E-04	3.70E-04	2.73E-04	4.59E-16	.00E+00	.00E+00	.00E+00	.00E+00	
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cu 68	4.59E-05	4.59E-05	4.59E-05	3.51E-05	1.40E-15	.00E+00	.00E+00	.00E+00	.00E+00	
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 69	5.92E-05	5.92E-05	5.92E-05	1.77E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 69m	5.51E-05	5.51E-05	5.51E-05	1.69E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ga 70	6.03E-11	6.03E-11	6.03E-11	1.83E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 71	7.31E-08	7.31E-08	7.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 71m	6.82E-04	6.82E-04	6.82E-04	1.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ge 71	1.21E-07	1.21E-07	1.21E-07	1.14E-07	5.17E-10	2.93E-17	7.11E-27	.00E+00	.00E+00	
ge 71m	4.43E-13	4.43E-13	4.43E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
co 72	1.03E-07	1.03E-07	1.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ni 72	5.96E-06	5.96E-06	5.96E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
cu 72	1.70E-05	1.70E-05	1.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zn 72	2.24E+00	2.24E+00	2.24E+00	1.56E+00	2.32E-14	.00E+00	.00E+00	.00E+00	.00E+00	
ga 72	2.79E+00	2.79E+00	2.79E+00	2.11E+00	3.34E-14	.00E+00	.00E+00	.00E+00	.00E+00	

ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	5.66E-08	5.66E-08	5.66E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	6.07E-06	6.07E-06	6.07E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	3.54E-05	3.54E-05	3.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	6.17E-05	6.17E-05	6.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	2.98E-01	2.98E-01	2.98E-01	9.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	2.94E-01	2.94E-01	2.94E-01	9.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	1.12E-08	1.12E-08	1.12E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	3.98E-06	3.98E-06	3.98E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	4.44E-05	4.44E-05	4.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	1.52E-04	1.52E-04	1.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	4.76E-05	4.76E-05	4.76E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	2.28E-09	2.28E-09	2.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	1.77E-06	1.77E-06	1.77E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	5.62E-05	5.62E-05	5.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	3.52E-04	3.52E-04	3.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	4.31E-04	4.31E-04	4.31E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	8.11E-04	8.11E-04	8.11E-04	4.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	2.34E-05	2.34E-05	2.34E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	7.07E-07	7.07E-07	7.07E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	4.54E-05	4.54E-05	4.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B BW 15x15, 3.00wt%, 20gwd/mtu decay

fission products

page 25

	nuclide radioactivity, curies									
	basis = per BW assembly, 0.409 mtm for grams									
	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d	
zn 76	7.74E-04	7.74E-04	7.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	1.16E-03	1.16E-03	1.16E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	1.38E+00	1.38E+00	1.38E+00	7.32E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	1.67E-07	1.67E-07	1.67E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	2.69E-05	2.69E-05	2.69E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	9.49E-04	9.49E-04	9.49E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	2.42E-03	2.42E-03	2.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	3.13E+01	3.13E+01	3.13E+01	7.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	2.48E-03	2.48E-03	2.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	2.99E+02	2.99E+02	2.99E+02	2.00E+02	5.62E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	9.56E-01	9.56E-01	9.56E-01	6.40E-01	1.80E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	3.48E-08	3.48E-08	3.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	1.08E-05	1.08E-05	1.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	1.21E-03	1.21E-03	1.21E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	5.41E-03	5.41E-03	5.41E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	2.50E-02	2.50E-02	2.50E-02	2.97E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	2.39E-01	2.39E-01	2.39E-01	7.87E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	2.69E-06	2.69E-06	2.69E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	5.81E-04	5.81E-04	5.81E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	5.40E-03	5.40E-03	5.40E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	1.59E-02	1.59E-02	1.59E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	1.72E-02	1.72E-02	1.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01
se 79m	1.71E-02	1.71E-02	1.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	6.07E-09	6.07E-09	6.07E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	4.70E-08	4.70E-08	4.70E-08	2.92E-08	1.28E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

